Routledge Studies in Seventeenth-Century Philosophy

CAUSATION AND COGNITION IN EARLY MODERN PHILOSOPHY

Edited by
Dominik Perler and Sebastian Bender

ROUTLEDGE

Causation and Cognition in Early Modern Philosophy

Early modern philosophers took the phenomena of causation and cognition to be closely related. United in their opposition to Aristotelian accounts of cognition, they developed a wide range of competing theories to explain which causal processes lead to cognitions. Somewhat surprisingly, some early modern authors also made cognition a requirement for causation, on the assumption that every cause needs to cognize its effect. This book explores both directions of explanation—from causation to cognition and vice versa—and surveys various accounts of causation and cognition.

In line with this general approach, this volume features original essays written by leading experts in early modern philosophy. It addresses a number of problems, among them the following:

- What are the entities involved in causal processes leading to cognition?
- What types of causality are at stake?
- What is God's role in causal and cognitive processes?
- How do causal processes that lead to cognition relate to other causal processes?
- To what extent does causation presuppose cognition?
- What kind of cognition is required for causation?

The essays explore how seventeen early modern thinkers answered these questions: Francisco Suárez, René Descartes, Louis de la Forge, Géraud de Cordemoy, Nicolas Malebranche, Ralph Cudworth, Anne Conway, Margaret Cavendish, Thomas Hobbes, Baruch de Spinoza, John Locke, Gottfried Wilhelm Leibniz, John Sergeant, Antoine Le Grand, George Berkeley, David Hume, and Thomas Reid. The volume is unique in that it explores both well-known and understudied historical figures, and in that it emphasizes the intimate relationship between causation and cognition to open up new perspectives on early modern philosophy of mind and metaphysics.

Dominik Perler is Professor of Philosophy at Humboldt-Universität, Berlin, and Member of the Berlin-Brandenburg Academy of Arts and Science. His books include *Partitioning the Soul: Debates from Plato Leibniz* (ed., 2014), *The Faculties: A History* (ed., 2015), and *Feelings Transformed: Philosophical Theories of the Emotions, 1270–1670* (2018).

Sebastian Bender is Lecturer in Philosophy at Humboldt-Universität, Berlin. His research focuses primarily on early modern philosophy, in particular on the metaphysics and philosophy of mind of this era. In 2016, he published his first book, *Leibniz' Metaphysik der Modalität*.

Routledge Studies in Seventeenth-Century Philosophy

Vanishing Matter and the Laws of Nature
Descartes and Beyond
Edited by Dana Jalobeanu and Peter R. Anstey

Locke and Leibniz on Substance
Edited by Paul Lodge and Tom Stoneham

Locke's Science of Knowledge
Matthew Priselac

The Idea of Principles in Early Modern Thought
Interdisciplinary Perspectives
Edited by Peter R. Anstey

Physics and Metaphysics in Descartes and in His Reception
Edited by Delphine Antoine-Mahut and Sophie Roux

Experiment, Speculation and Religion in Early Modern Philosophy
Edited by Alberto Vanzo and Peter R. Anstey

Mind, Body, and Morality
New Perspectives on Descartes and Spinoza
Edited by Martina Reuter and Frans Svensson

Locke's Ideas of Mind and Body
Han-Kyul Kim

Causation and Cognition in Early Modern Philosophy
Edited by Dominik Perler and Sebastian Bender

For more information about this series, please visit: www.routledge.com/Routledge-Studies-in-Seventeenth-Century-Philosophy/book-series/SE0420

Causation and Cognition in Early Modern Philosophy

Edited by Dominik Perler
and Sebastian Bender

Routledge
Taylor & Francis Group
NEW YORK AND LONDON

First published 2020
by Routledge
52 Vanderbilt Avenue, New York, NY 10017

and by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2020 Taylor & Francis

The right of the editors to be identified as the authors of the editorial material, and of the authors for their individual chapters, has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Library of Congress Cataloging-in-Publication Data
A catalog record for this book has been requested

ISBN: 978-1-138-50534-6 (hbk)
ISBN: 978-1-315-14653-9 (ebk)

Typeset in Sabon
by Apex CoVantage, LLC

Contents

Introduction 1
DOMINIK PERLER AND SEBASTIAN BENDER

1 **Suárez on Intellectual Cognition and Occasional Causation** 18
DOMINIK PERLER

2 **Descartes on the Causal Structure of Cognition** 39
ALISON SIMMONS

3 **Cartesian Causation and Cognition: Louis de la Forge and Géraud de Cordemoy** 61
TAD M. SCHMALTZ

4 **Causation and Cognition in Malebranche** 83
STEPHAN SCHMID

5 **Ralph Cudworth: Plastic Nature, Cognition, and the Cognizable World** 105
SARAH HUTTON

6 **Nothing Is Simply One Thing: Conway on Multiplicity in Causation and Cognition** 123
JULIA BORCHERDING

7 **Cavendish on Material Causation and Cognition** 145
DAVID CUNNING

8 **The Mechanical Mind: Hobbes on Sense Cognition and Imagination** 171
MARTINE PÉCHARMAN

9 **Knowing Mind Through Knowing Body: Spinoza on Causal Knowledge of the Self and the External World** 194
DANIEL GARBER

10 **The Many Faces of Spinoza's Causal Axiom** 212
MARTIN LIN

11 **Locke on Causation and Cognition** 233
JENNIFER MARUŠIĆ

12 **Embodied Cognition Without Causal Interaction in Leibniz** 252
JULIA JORATI

13 **John Sergeant and Antoine Le Grand on the Occasional Cause of Cognition** 274
HAN THOMAS ADRIAENSSEN

14 **Berkeley on Causation, Ideas, and Necessary Connections** 295
SEBASTIAN BENDER

15 **Hume and "Reason as a Kind of Cause"** 317
P. J. E. KAIL

16 **Reid on Intentionality and Causation** 331
JAMES VAN CLEVE

List of Contributors 348
Name Index 351
Subject Index 355

Introduction

Dominik Perler and Sebastian Bender

1. From Causation to Cognition

It seems quite natural that causation and cognition are closely connected. For we cannot cognize material things around us unless they cause some sensory impressions in us, nor can we act upon these things and eventually use them unless we have some cognition of them. But how do we cognize them? And in what kind of causal relation do we stand to them? Early modern philosophers paid close attention to these questions and developed a wide range of metaphysical and epistemological theories to answer them. They carefully examined different types of causal and cognitive processes, their origin, their specific structure, and their interrelation. When dealing with these issues they considered not just human beings, but also animals, and in some cases even God and angels. With respect to all these beings they attempted to spell out the relevant causal processes that are required for cognition. Somewhat surprisingly, a number of early modern authors also tried to explain causal processes in cognitive terms, requiring that there be a cognitive relation between any given cause and effect. That is, early modern philosophers analyzed the relation between causation and cognition in both directions, going from causation to cognition and from cognition to causation. In this Introduction, we will look at both directions. The first part deals with different early modern routes leading from causation to cognition, the second part with the reverse direction.

Why were early modern philosophers so interested in the question of how causation leads to cognition? We can most easily answer this question if we look at a fundamental form of cognition, namely, perceptual cognition. Suppose that I now perceive the green trees out there in the garden. Why do I have this perceptual cognition? There seems to be a simple answer: I perceive the trees because I am right now in causal contact with them. That is, the light rays reflected by the trees affect my eyes, and this affection gives rise to a visual image, which in turn gives rise to a perceptual state with a distinctive content. Quite often, the perceptual state then gives rise to further states, such as states of thinking

about trees, or of reflecting about the physical nature of trees. It therefore seems natural to assume that there is some kind of causal chain that leads from the external trees to my internal states, and that if there were no such chain, I could never cognize the trees. However, it seems equally natural to assume that this must be a special kind of causal chain that differs from other causal chains. When I take a deep breath, I am also affected by something in my environment, and this affection also gives rise to internal states, above all to states in my lungs, but I do not thereby cognize the air. It is thus clear that merely being affected by something external and having some internal states as a result is not enough for cognition. What else is required?

Scholastic Aristotelians, who strongly influenced debates about cognition far into the early modern period, gave a clear answer to this question.[1] On their view, at least three conditions need to be satisfied for a causal process to lead to cognition. First of all, the right kind of external thing needs to be present, and for Aristotelians this is a sensible form. This means that I can perceive the trees in the garden because they have various sensible forms, such as the form of greenness, which are present to me. By contrast, the colorless and odorless air has no sensible form I could see or smell; hence I cannot perceive it. Second, the right kind of faculty or capacity needs to be in place. My eyes are endowed with a visual capacity, and that is why they are able to respond to the sensible form. My lungs, by contrast, have no visual capacity and no other perceptual capacity; hence they cannot perceive anything. Third, the perceiver needs to respond to the form that is present in the right way. This response consists in a process of assimilation: the sensory organ needs to take in the sensible form. The eyes that have a visual capacity are able to do this because they can somehow take in or receive the sensible form they are facing. Aristotelians even claimed that they can receive it in a non-material way.[2] This means that my eyes can assimilate the sensible form of greenness without literally becoming green. They are able to take in the pure form—the form stripped away, as it were, from matter. By contrast, my lungs cannot assimilate any form in that way. They can only inhale or take in the air as something material. Hence, they will be literally filled with air, but they will never be able to cognize the air.

This is only a rough sketch of the Aristotelian position, but hopefully it shows that there was a clear answer to the question of why more than a mere causal chain is required for cognition. In its shortest form, the answer amounts to saying that there needs to be (1) the right kind of external form, (2) the right kind of internal capacity, and (3) the right kind of assimilation of the form. Of course, each of these three conditions poses many problems, and it is therefore not surprising that the Aristotelian position gave rise to lively debates far into the seventeenth century.[3] But no matter how much the philosophers participating in these debates

disagreed about the details, they all accepted the fundamental thesis that there can be no cognition unless the three conditions are satisfied.

This changed in the early modern period. To be sure, there was no revolutionary act that swept away Aristotelianism. It is well known that there were various forms of continuation and transformation of the Aristotelian position.[4] Some of them—for instance, those defended by Francisco Suárez at the end of the sixteenth century and by John Sergeant a century later—are discussed in this book.[5] But in general, there was a deep skepticism about all versions of Aristotelianism. This skepticism gave rise to new problems and sparked new debates about the relationship between causation and cognition.

Let us first look at the Aristotelian claim that the right kind of external thing—namely, a sensible form—needs to be present. Most early modern authors rejected the theory of form. Descartes mockingly remarked that forms, real qualities, and other scholastic entities are "nothing but chimeras."[6] Or to put it in more sober terms, they are theoretical entities for which there is no evidence. Even those authors who were less hostile to the scholastic tradition and kept using Aristotelian vocabulary (e.g., Leibniz) radically reinterpreted it.[7] They denied that sensible forms exist as special entities distinct from matter. Hence, when describing material things such as trees they rejected the claim that they have a special form of greenness. These things are just chunks of matter, as the Cartesians said, with nothing but geometric and kinetic properties.[8]

Now, this claim gave rise to a first problem: What exactly is the external thing that affects us and thereby causes a cognitive state? Is it just a bundle of geometric and kinetic properties? If so, why do we perceive colors and smells? And why do we so readily affirm that these properties really exist in material things? Are we simply wrong in making this affirmation? Should we therefore give up a seemingly harmless statement like "The trees are green"? This is of course the famous problem of secondary qualities.[9] It is an immediate consequence of the denial of sensible forms. As soon as their existence becomes suspect for metaphysical or physical reasons, an explanatory gap opens. One then needs to explain what takes the place of sensible forms and what is the right kind of external relatum that is required for a cognitive relation. It is therefore not surprising that Descartes and his successors took this problem very seriously, as various chapters in this book make clear.[10]

But the problem runs deeper. Aristotelians who talked about sensible forms as real never considered them as entities that can exist independently. They always assumed that they are somehow connected with or rooted in substances, which they took to be compounds of substantial forms and matter. That is why they always thought that we can cognize substances along with sensible forms. Thus, when perceiving a green tree out there in the garden, I do not simply get in touch with the sensible form of greenness. Rather, I get in touch with this form insofar as it is

rooted in the substance of the tree. Hence, I cognize the greenness as it is present in this particular substance. In other words, I cognize the green tree. This changes with the denial of forms. As soon as all forms, substantial as well as sensible ones, are rejected, the claim that I really cognize a substance becomes suspect. What then entitles me to affirm that I cognize more than the geometric and kinetic properties that are present to me? How can I justify the claim that there is in fact a substance that somehow underlies all these properties? Given these questions, it is not surprising that many early modern philosophers were skeptical about the claim that there are "hidden substances" in the world. Locke still assumed that there must be such substances, but he took them to be inaccessible bearers of properties—bearers we posit because we assume that there can be no free-floating properties.[11] Hume went one step further, denying that we are allowed to posit substances. If they are not accessible to us, and if we therefore lack empirical evidence for their existence, we should not speak about substances, or if we do, we should be aware that we are only speaking about something we make up in our imagination.[12]

These reactions make clear that skepticism about the Aristotelian theory of forms opened the door to a fundamental debate about the external relatum in a cognitive relation. A satisfactory theory was now needed to explain what kind of thing—a property, a substance, or perhaps another entity, say an event—could stand in such a relation. In any case, it was no longer possible to appeal to hylomorphism as common ground to explain this thing. The metaphysical basis of the cognitive theory needed to be revised.

It was not just the external relatum, however, which became a problem; the internal relatum was now equally problematic. Aristotelians could easily refer to internal capacities because they thought that the soul responding to the external forms was also a form, and they characterized it by speaking about special capacities or faculties. In the case of human beings, they spoke about sensory and intellectual faculties. This was no longer an option for early modern anti-Aristotelians. Many of them, especially Cartesians, attempted to "mechanize" the sensory faculties. That is, they tried to explain them in terms of physical or physiological mechanisms present in the body.[13] This means, for example, that the sensory faculty that the Aristotelians located partly in the eyes (or other sensory organs) and partly in the brain was now considered to be nothing but a mechanism that enabled the eyes and the brain to react to causal input and to produce a certain output, say, visual images. This mechanistic picture not only gave rise to empirical questions of how exactly the right kind of output was produced; it also posed a deep problem about the very nature of the internal relatum. What is so special about the mechanisms present in the eyes and the brain that they can produce an output with cognitive content? After all, the mechanisms present in the lungs also produce an output, and they are also quite complex, but

they do not lead to anything with cognitive content. Why not? Why do some mechanisms result in cognitions and others do not? These questions show that simply abandoning the Aristotelian talk about faculties and replacing it with mechanistic talk was not enough. It was now necessary to specify the right kind of mechanism and to spell out the minimal conditions that needed to be satisfied for a mechanism to be cognitive.

But this was still not sufficient for an adequate explanation of the internal relatum. Aristotelians also referred to the intellect as the highest faculty, and many anti-Aristotelians continued to talk about the intellect, despite their rejection of hylomorphism. Descartes famously mentioned the intellect and the will as the two faculties or capacities of the mind.[14] This inevitably gave rise to questions about the nature of the intellectual capacity. Why should it be necessary to admit such a capacity as a very special one? Why should it be impossible to mechanize all the capacities, including the intellectual one? And if there is a non-mechanical capacity, what makes it so special? Why is it the kind of capacity that can react to causal input and produce cognitions? These questions show that simply positing a mind with an intellectual capacity was not sufficient. As soon as the traditional account of this capacity was abandoned, a new explanation of the internal relatum was required. A number of early modern philosophers (e.g., Hobbes and Hume) were fully aware of this problem and developed theories that no longer appealed to the intellect as a special capacity that is fundamentally different from all other cognitive capacities. On their view, the same mechanical principles that apply to the so-called lower capacities, such as the imagination, also apply to the intellect as a higher capacity.[15]

But here again, the problem runs deeper. It was not just the functioning of the intellect that became a problem, but its very relation to the lower capacities. Suppose there are indeed certain mechanisms in my body that provide a specific output—say, a certain pattern in my brain—when I look at the green trees in the garden. And suppose I have an intellect as a distinctive capacity that reacts in a non-mechanical way to this output and produces a thought such as "There are green trees in the garden." How is it possible for a non-mechanical capacity to react to the output of a mechanical capacity? How can there be a relation between two utterly different capacities? And if there is a relation, is it really a causal one? Positing a causal relation is hardly convincing, for it is difficult to see how a mechanical capacity could somehow act upon a non-mechanical capacity and bring about a thought in it. And it is equally difficult to see how a non-mechanical capacity could somehow transform the brain state produced by the mechanical capacity into a thought. Such an account sounds even less convincing if one assumes, as Descartes did, that the mechanical capacity is material whereas the non-mechanical capacity is immaterial. How can there be a causal relation between two metaphysically different types of capacity? This is of course the famous interaction

problem, which was widely discussed in the seventeenth century. There were various proposals about how to solve it, as the chapters in this book make clear. One could simply take the interaction to be a brute fact and focus on the two relata in the causal relation, rather than on the relation itself.[16] Or one could claim that there is, strictly speaking, not a relation of *efficient* causation at stake here, but only one of *occasional* causation. This means that the mechanical capacity in the body does not act upon the non-mechanical intellect, but simply provides the right kind of occasion for the intellect to become active and to produce a thought.[17] Or one could deny that there is an interaction and simply speak about two different attributes under which one and the same state can be subsumed and explained; this amounts to saying that the same state, say the state of seeing trees, can be explained in mechanical terms under the attribute of extension and in non-mechanical terms under the attribute of thought.[18] Or one could insist that states in the body and in the intellect really differ from each other, while pointing out that there is nothing but a perfect correspondence between them—a harmonious relationship established by God, which does not require any causal interaction.[19]

Each of these solutions has its own problems, and each of them sparked controversial debates in the early modern period. What is remarkable about all of them is the fact that they motivated early modern philosophers to re-examine the relation between the so-called lower and higher capacities. They wanted to know if it really is a causal relation, and if so, what type of causal relation. Consequently, they engaged in a detailed debate about causation. In fact, they realized that it is impossible to give an account of the causal relation required for cognition without a clear understanding of causation in general. It is therefore not surprising that it is precisely in the context of cognitive theories, and not just in purely metaphysical or physical contexts, that they made some of the most original contributions to the debate about causation.

Finally, let us look at the third condition that needed to be satisfied from an Aristotelian point of view, namely the right kind of relation between the internal capacity and the external form. This was the relation of assimilation: the intellect needs to receive the form in a non-material way. Most anti-Aristotelians rejected this relation and replaced it with the relation of representation. On their view, the intellect reacts to input coming from the body by forming ideas that represent external things, and they insisted that the representing ideas are really distinct from the represented things. But of course this widespread talk about representing ideas is far from innocent. It immediately gives rise to the question of what representation amounts to. What does it mean, for instance, that my intellect can form an idea that represents the trees out in the garden? What is the nature of the representational relation? How does it differ from other relations? And why does it arise at all? Here again, the rejection of the Aristotelian position created a need for explanation. It was

not enough to say that the intellect could form thoughts about external things without receiving or absorbing any forms. Rather, one had to explain why the intellect was able to do that and how its thoughts or ideas would really be about external things. Otherwise, one would run the risk of turning the intellect into a "magical power" that somehow connects its own ideas or thoughts with external things without there being any natural ground for this connection.

Given this problem, early modern philosophers were deeply concerned with the problem of representation. Some of them (e.g., Descartes) still followed in the footsteps of scholastic Aristotelians and claimed that the intellect cannot represent anything unless its thoughts have an "objective reality," that is, a specific content, which they somehow get from external things.[20] So there seems to be some kind of receptive process although there is no reception of forms. Others (e.g., Leibniz) claimed that no reception is required. The intellect simply needs to have some states that are structurally similar to those in the external things.[21] Still others (e.g., Malebranche) appealed to divine ideas and claimed that the human intellect needs external help: it is only a relation to ideas in God's intellect, which are intrinsically representational, that makes human thoughts representational.[22] Finally, some authors (e.g., Reid) considered it pointless to ask what makes human thoughts representational; they are intrinsically representational. Thus, Reid refused to explain representation in receptive or causal terms.[23]

Here again, it is quite evident that each of these solutions has its own problems, and each of them sparked lively debates in the early modern period. But what matters here are not so much the details of these debates; more important is the general thrust. Once early modern philosophers abandoned the Aristotelian theory of assimilation, they had to explain why a thought or idea could be about an external thing without there being a form of that thing present in the intellect. They had to spell out the special nature of the idea and make clear why it could function as a sort of arrow that is pointed at an external thing. Moreover, they had to give an account of the connection between this representational relation and the causal relation. Is the causal chain that leads from the external thing to the intellect responsible for the fact that the idea in the intellect is directed at the external thing? If so, how does this causal chain fix the idea's direction? And how can it make the idea directed at all? After all, there are many causal chains that do not lead to an item that can represent something else. Why should it be different in the case of an idea? These questions show that simply introducing talk about representing ideas was not enough. Otherwise the technical term "idea" would remain a mere placeholder for some mysterious thing. As Voltaire, who was highly skeptical about the inflationary use of this term in his time, sarcastically remarked: "It is really sad to have so many ideas and not to correctly know the nature of these ideas. I confess that. But it is even

sadder to think that one knows what one does not know."[24] Given this critique, it is quite understandable that many early modern philosophers attempted to give an account of the nature of ideas. Explaining cognition in terms of representation required a detailed analysis of that nature.

We hope these short remarks make clear why early modern philosophers were so intrigued by the connection between causation and cognition. After the demise of Aristotelianism it was utterly unclear how causation could ever lead to cognition. Everything was now up in the air: the relata in the cognitive relation as well as the relation itself.

2. From Cognition to Causation

The idea that certain causal processes are required for there to be cognition is a very natural one, certainly in the case of perceptual cognition. In fact, this idea is so natural that it seems hard to deny. It should not surprise us, therefore, that probably all early modern authors would have agreed that *some* causal process is needed for there to be cognition in finite creatures. (Divine cognition may be different.) Even occasionalists, who claimed that God is the only true cause, readily granted that there is something which causes my perception of a tree, although of course they would add that the tree itself is only an occasional cause and that God is the only real cause in the process.[25] Broadly speaking, early modern authors would be in overall agreement that the existence of some causal process is a necessary condition for many forms of cognition, even though it is not always the sort of causal process one might expect at first sight.

What about the reverse claim? Could it be that cognition is required for causation? For certain instances of causation, such a requirement sounds plausible. When it comes to the causation proceeding from intelligent beings—for example, human actions—it is quite natural to hold that it presupposes some form of cognition. To give a rather obvious example, initiating the causal process that results in the building of a house clearly requires not just one but many different cognitions. It should not surprise us, therefore, that many early modern philosophers held that in cases where the causes are rational agents, some form of cognitive activity on the part of those agents is required. Descartes and Malebranche, for example, believe that the will cannot operate without the intellect.[26] To form the volition to build a house, they argue, the will needs first to be presented with the idea of a house. Only then can the will assent to the idea and thereby form a judgment, which ultimately results in an action.

Hence, a cognitive requirement on causation sounds reasonable in cases where intelligent beings, such as Cartesian minds, are the causes. But what about the more general claim that cognition is required in *all* instances of causation? Could it be that all causation needs to be understood in cognitive terms? Of course, this would be a much stronger claim,

which sounds rather outlandish. If one material thing causes another, then the first thing surely need not *cognize* the second in order to be its cause. Who would endorse such a claim? As it turns out, a surprisingly large number of early modern philosophers do make claims of this sort. They say, or imply, that causes need to cognize their effects in order to be causes in the first place. Thus, early modern authors do not only explain cognition in causal terms; some of them also go the other way around and explain causation at least partly in cognitive terms. It is this route—the route from cognition to causation—to which we now turn.

Before we begin investigating the reasons that early modern philosophers might have for holding such a peculiar-sounding view, let us consider some examples.[27] An especially clear case is the seventeenth-century occasionalist Arnold Geulincx. In his *Metaphysica vera* he states the following principle: "What you do not know how to do, is not your action."[28] Taken in isolation, this passage does not prove very much, as it may be read as simply stating that the actions of rational agents presuppose cognitions. That Geulincx in fact intends his principle to hold for *all* types of causes, however, is clear from the fact that immediately after stating the principle he applies it to inanimate entities.[29] He writes:

> I never supposed that I myself could cause heat, light, or vertical motion, because I do not know how to do such things. Why, then, should I have supposed the same of fire, the Sun, and a stone, when it is equally clear that they do not know either, and are indeed devoid of knowledge?[30]

The fire, the sun, and the stone, Geulincx argues here, are not the causes of heat, light, and vertical motion, respectively, for they lack knowledge or cognition of those things. More generally, then, in order to be a cause, a thing must have knowledge of its effect, no matter what kind of thing is at issue. Thus, on Geulincx's view unintentional (i.e., non-cognitive) causation is impossible. Every cause is an agent with its own cognitions.[31]

Another, perhaps more well-known example is Nicolas Malebranche. When arguing for his occasionalist doctrine in the *Search after Truth*, he writes:

> I even see clearly that there can be no relation between the volition I have to move my arm and the agitation of the animal spirits, i.e., of certain tiny bodies whose motion and figure I do not know and which choose certain nerve canals from a million others I do not know in order to cause in me the motion I desire through an infinity of movements I do not desire.[32]

Malebranche here argues that there can be no causal relation between my volition to move my arm and the movement of the arm, because I do

not know how to bring about such a movement. That is, he contends that for an agent to bring about an effect, the agent must know the effect, that is, have a cognition of it. It is not immediately clear, however, what exactly the scope of Malebranche's line of reasoning is. Does he intend his argument to apply only to human minds, or is he relying on a more general causal principle, as Geulincx does?[33] Steven Nadler has shown quite convincingly that in other passages Malebranche employs the general principle, which is similar to the one endorsed by Geulincx in that it is not restricted to rational agents.[34] In the *Christian Conversations*, Malebranche's spokesman Theodore asks rhetorically: "Can the fire act on you? Can it cause in you a pleasure which it does not have, which it does not sense, which it does not know?"[35] Obviously, Malebranche thinks that the answer to these questions is no. Like Geulincx, then, Malebranche seems to presuppose that *all* instances of causation are such that the cause must have a cognition of the effect it brings about, not just the instances where the causes are rational agents. He therefore suggests that causation in general must be explained in cognitive terms, no matter what type of cause is at stake.

Finally, George Berkeley is another early modern philosopher who endorses a version of the doctrine that only cognizers are causes. He writes: "[A] proper active efficient cause I can conceive none but Spirit; nor any action, strictly speaking, but where there is Will."[36] Saying that only spirits (i.e., cognitive beings) with volitions can be causes is equivalent to saying that all causes are cognitive entities.[37]

To a twenty-first-century reader, claims like those made by Geulincx, Malebranche, and Berkeley may seem peculiar and strange at best, or hopelessly confused at worst. It may therefore be tempting to see texts giving voice to the "all causation involves cognition" doctrine as exceptional occurrences and perhaps as historical curiosities, but nothing more. We believe, however, that this would be a mistake. Making causation conditional on cognition in some way or other is in fact surprisingly common during the early modern period. Besides the examples already mentioned, philosophers like Leibniz, Conway, and Cavendish may be cases, too. Leibniz believes that every substance (rational or not) is causally active, and that this activity consists in the production of perceptions through the substance's appetite, and this clearly is a cognitive activity.[38] According to Conway, all created beings share the attribute of spirit or life, that is, "the capacity for every kind of feeling, perception or knowledge, even love, all power and virtue."[39] On Conway's view, it is this attribute which accounts for change, and hence for causation, so causation and cognition are closely related for her as well.[40] Finally, Cavendish straightforwardly defends the view that bodies can move only in virtue of cognizing their environment; otherwise, she argues, natural change could not be explained.[41]

If the observations so far are correct, this raises the question *why* so many early modern philosophers would feel pressure to introduce

a cognitive requirement for causation. Of course, we cannot provide a complete answer to this question here, but let us briefly sketch what a possible explanation might look like. Most early moderns hold that a cause is something *active*. That is, in order for something to be a cause, it needs to *do* something. This is a rather natural idea (even more so if one thinks of causes as agents and does not subscribe to the Humean event model of causation), and it is one that is inherited from Aristotelian philosophers, who hold that causation presupposes an active principle of some sort. However, while the Aristotelian universe is full of causally active beings—that is, substances endowed with causal powers—the early modern universe looks rather different (at least the view of the world popularized by early modern anti-Aristotelians).[42] Many seventeenth-century authors (e.g., the Cartesians) have a tendency to purge the material universe of everything active. What is left is nothing but entirely passive and powerless chunks of extended matter. But entities that are entirely passive and in no way active cannot *do* or *bring about* anything. The only active beings that are left in such a universe are minds.[43] It is perhaps understandable, therefore, that many early modern philosophers find it hard to conceive of something active that is not a mind (or at least a mind-like entity) and hence cognitive. If causes are by definition active, however, and if cognitive activity is the only way of being active you can conceive of, it suddenly seems a lot more natural to hold that every causally active being must be cognitive as well. While the Aristotelians had an ontology which was tailor-made to account for natural (non-cognitive) activity, the metaphysical frameworks within which many early modern authors operated (e.g., Cartesian dualism) simply lack the resources to do just that. If everything which is not a mind is completely passive and lacks activity all together, it is only consistent to restrict all activity to the realm of minds.

Of course, this brief attempt to provide an explanation for why many early moderns subscribed to such a strange-sounding cognitive requirement for causation needs to be developed further. Other explanations have been offered. Steven Nadler, for example, has suggested that—at least in the case of Geulincx and Malebranche—it is *volitional* causal activity that constitutes the paradigmatic case of a causally active being, and that all other cases are modeled after the volitional case. Why would anyone consider volitional causal activity to be the paradigm case of causation? Perhaps the reason is that divine creation is the most basic form of causation, and God always acts through volitions. In any case, if it is also assumed that for an agent to form a volition about X the agent needs to cognize X, it straightforwardly follows that all forms of causation require cognition.[44] Still another explanation is provided by Stephan Schmid (in Chapter 4 of this volume), who points out that early modern philosophers often conceive of causal powers as internally directed at their (potential) effects. In this, powers resemble cognitive, intentional

states. It may therefore be tempting to early modern thinkers, Schmid concludes, to explain the former in terms of the latter.[45]

Note that the three different explanations just presented are by no means exclusive alternatives. On the contrary, they may complement one another, and together they may form a coherent package. It may be that different authors had different reasons for subscribing to the thesis that causation requires cognition, but it may also be that a given author will sympathize with all three explanations. However this may be, explaining why so many early modern philosophers made causation dependent on cognition is certainly a topic that deserves more attention, especially if we are right in thinking that this unusual-seeming link between causation and cognition is much more widespread in the early modern period than it may initially appear.

Besides calling for an explanation, the doctrine that all causes are cognizers also raises a number of other questions. Let us briefly mention four of them. First, even if, for the time being, we accept that all forms of causation require cognition, this still leaves open the question of what kind of cognition is relevant here. Does it have to be a conscious mental state, or is an unconscious cognition sufficient? Must the entity which causes an effect cognize this effect in its entirety, or is a vague and rough cognition of the effect enough? Is it necessary for the cause to cognize the vast number of intermediate links when setting in motion a complex causal chain? Finally, in addition to cognition, some early modern authors also assume that *volition* plays an important role in all instances of causation. (As we have seen, Berkeley is a clear example. And if Nadler is right, authors like Geulincx and Malebranche treat volitional causation as a paradigmatic case.) But what precisely is the nature of these volitions, and how do they account for genuine causality? These and related questions about the nature of the cognition featuring in the "causation requires cognition" doctrine all need to be addressed if a complete picture is to emerge.

Second, one may wonder whether *all* cognizers are also causes. Different authors respond differently. Malebranche, for example, clearly answers this question in the negative. For him, there are many minds (i.e., cognizers), but only one of them (namely, God) is a true cause. Leibniz and Berkeley, however, appear to answer the question in the affirmative. They seem to think that *all* cognizers—be they Leibnizian monads or Berkeleyan spirits—are also causally active.[46] For them, then, the properties of being a cognizer and of being a cause are coextensive.

Third, it would be interesting to see how exactly the claim that all causes are cognizers is related to early modern mechanism. One quite ambitious early modern project was to develop complete explanations of a wide range of phenomena, including cognitive phenomena, in purely mechanistic terms.[47] The movements and interactions of extended particles were to provide an account of basically everything that happens in nature. This was, broadly speaking, a naturalistic project. If one also holds

that all causes are cognizers, however, this mechanistic (and naturalistic) project may appear to be in danger. One effect of the "causation requires cognition" doctrine is what one might call an "outsourcing" effect. There is an understandable tendency, especially among Cartesian authors, to explain the behavior of bodies *not* in terms of the natures of the bodies—rocks and tables do not seem to cognize anything, after all—but by reference to something external. The clearest case is of course occasionalism, but a similar outsourcing can be observed in many non-occasionalist authors as well.[48] Hence, the thesis that causation and cognition are closely linked in the way described above can have a "denaturalizing" effect. The opposite reaction is also found however. There are quite a few authors who see all of nature as in some sense cognitive (as we have seen above, they include Conway, Cavendish, and Leibniz). It might be that such views are partly motivated by the "causation requires cognition" thesis (though this would have to be investigated further). These authors are willing to bite the bullet and acknowledge that rocks and tables do in fact cognize something. Cavendish, for example, holds that if it is not assumed that things like rocks and tables cognize something, their movement would be inexplicable.[49]

Fourth, one may wonder how the claim that causation requires cognition influences deflationary and reductionist developments in eighteenth-century thinking about causation (the most famous example being of course Hume). If the thought that there cannot be causation without cognition was really as pervasive as we have claimed, and if this thought is indeed motivated by a strong association of causation with activity, then this may have served as a reason to question this very association. In other words, it may be that authors like Hume deny the "causation requires cognition" doctrine, and therefore give up the conception of causes as active, because they do not want to rid the non-cognitive world of all causes. This in turn might lead them to heavily revise the concept of a cause. Once the association between causation and activity is loosened, or given up entirely, the door is open to conceive of causal relations in very different terms—namely, in terms of regularity or even in counterfactual terms. Hence, it may not be just our inability to spot any "necessary connection" between distinct objects or events (as Hume has it) that leads to revisions in early modern conceptions of causation. Changes in how philosophers thought causation, activity, and cognition were connected to one another might also be important.

We hope our remarks make clear that the topics of causation and cognition were closely connected in early modern thinking, sometimes in ways that may be unexpected and surprising to contemporary readers. Given these close connections, one should expect that early modern theorizing about causation influenced early modern theorizing about cognition and vice versa. It therefore makes sense, we think, to investigate these two topics together in one volume.

3. Acknowledgments

This book would not have been possible without the help and generous support of many people and institutions. First of all, we would like to thank all the authors for participating in this collaborative project. They all presented drafts of their chapters at a conference which took place at the Humboldt-Universität in Berlin in May 2018. The lively discussions helped all of us to think more thoroughly about the connection between causation and cognition, to see connections among the early modern philosophers discussed in this book, and to improve the quality of our papers. Our thanks also go to Ruti Ungar, Birgit Nennstiel, Carolin Finkemeyer, and Claudio Mazzocchi, who helped us with organizing the conference. They did everything to create an ideal atmosphere for both formal and informal discussions.

We are indebted to Ian C. Drummond for his work as stylistic editor and to Hendrik Liermann for his administrative support. Finally, we would like to thank the "Exzellenzcluster Topoi," a joint research cluster at Humboldt-Universität and Freie Universität Berlin, for their generous financial support, which made it possible to bring together scholars from Europe and North America, thereby deepening transatlantic exchange.

Notes

1. This answer was inspired by the second book of Aristotle's *De anima*. On the reception of this work up to the seventeenth century, see Bakker and Thijssen 2007; Perler 2008.
2. They often referred to a "spiritual" or "intentional" existence the form then has in the perceiver; see Burnyeat 2001 for Aquinas's influential account, and Perler 2015 for a survey.
3. For analysis of these debates, see Pasnau 1997; Perler 2002; Adriaenssen 2017.
4. Rejecting Thomas Kuhn's famous thesis about scientific revolutions, Steven Shapin opened his study with the following dry remark: "There was no such thing as the scientific revolution, and this is a book about it" (Shapin 1996, 1). On the longevity of the Aristotelian tradition, see Des Chene 1996; Ariew 2011.
5. See the chapters in this volume by Dominik Perler (ch. 1) and Han Thomas Adriaenssen (ch. 13).
6. Letter to Mersenne, 28 October 1640 (AT III, 212). For a detailed analysis of this critique, see Hattab 2009.
7. On various reinterpretations of the form-matter theory, see Manning 2012.
8. On this reductionist account, see Leijenhorst 2002 and the concise account in Hattab 2011.
9. For an in-depth analysis of this problem, see Nolan 2011; for a concise account, see Hamou 2011.
10. See the chapters by Alison Simmons (ch. 2), Tad Schmaltz (ch. 3), David Cunning (ch. 7), and Jennifer Marušić (ch. 11).
11. See *An Essay Concerning Human Understanding* II.xxiii.2 (ed. Nidditch, 296).
12. See *A Treatise of Human Nature* 1.4.3 (ed. Norton and Norton, 146).
13. On this strategy, see Des Chene 2001 and part I in Glennan and Illari 2017. On the critique of scholastic theories of faculties in general, see Schmid 2015.

14. See the Fourth Meditation (AT VII, 56).
15. See the chapters in this volume by Martine Pécharman (ch. 8) and Peter Kail (ch. 15).
16. This is Descartes' position, as the chapter in this volume by Alison Simmons (ch. 2) shows.
17. This is the position defended by La Forge, Cordemoy, and Le Grand, as the chapters in this volume by Tad Schmaltz (ch. 3) and Han Thomas Adriaenssen (ch. 13) make clear.
18. This is Spinoza's solution; see the chapters in this volume by Daniel Garber (ch. 9) and Martin Lin (ch. 10).
19. This is the solution offered by Leibniz; see the chapter in this volume by Julia Jorati (ch. 12).
20. See Descartes' Third Meditation (AT VII, 40–42).
21. Leibniz rejects pictorial similarity, speaking instead about a "proportion" between the representing idea and the represented thing; see *Quid sit idea* (AA VI, 1370–71).
22. See *De la recherche de la vérité* III.2.6 (Oeuvres I, 437–47).
23. See the chapter in this volume by James van Cleve (ch. 16).
24. Voltaire 1964, 224.
25. See *De la recherche de la vérité* VI.2.3 (Oeuvres II, 312).
26. For Descartes, see the Fourth Meditation (AT VII, 57); for Malebranche, see *De la recherche de la vérité* I.1.2 (Oeuvres I, 47).
27. The following examples are also discussed in Lee 2016.
28. *Metaphysica vera* II, 150/M I.5.
29. For this point, see also Nadler 1999, 268.
30. *Metaphysica vera* II, 150/M I.5.
31. Nadler 1999 and Lee 2008 make the same point. Lee succinctly points out that Geulincx intends his principle to apply to all types of causes: "If restricted to the causality of rational, intentional agents, the principle seems to have some intuitive appeal. But Geulincx, interestingly enough, does not restrict the principle in this way. Rather, he takes it to be universally applicable, even to bodily causes, which has raised questions about the plausibility of this overall argument" (Lee 2008, sect. 1.3).
32. *De la recherché de la vérité*, Éclaircissement XV (Oeuvres III, 226; English translation, 669).
33. For a very helpful overview of different interpretative approaches, see Lee 2008, sect. 3.2. Malebranche's argument is also discussed in detail by Stephan Schmid in this volume (ch. 4).
34. See Nadler 1999, 267–68.
35. Oeuvres IV, 16.
36. Letter to Johnson, 25 November 1729; W II, 280.
37. For a more detailed discussion of Berkeley's conception of causation see the chapter in this volume by Sebastian Bender (ch. 14). Of course, it is no coincidence that many of the authors mentioned are occasionalists or at least sympathize with occasionalism. However, it is not as though they hold the "causation requires cognition" doctrine because they subscribe to occasionalism. Quite the opposite: they typically use the "causation requires cognition" doctrine as a premise in arguments for occasionalism (see Nadler 1999; Ott 2008).
38. See the chapter in this volume by Julia Jorati (ch. 12).
39. *Principles* 9.6.
40. For a detailed analysis of how causation and cognition are connected for Conway, see the chapter in this volume by Julia Borcherding (ch. 6).
41. For a discussion, see the chapter in this volume by David Cunning (ch. 7).
42. Of course, there also existed a lively Aristotelian tradition in the seventeenth century. See the chapter in this volume by Han Thomas Adriaenssen (ch. 13).

43. This is also suggested by Nadler 1999, 271: "Without the forms of the scholastics, the physical world is, when left to its own devices, inert. For the Cartesian, only a thinking substance can be active."
44. See Nadler 1999, 270.
45. See also Ott 2008, 180, who writes with respect to Malebranche: "For example, 'the ball is dropped from the tower' and 'the ball hits the ground' do not in any sense include or make reference to each other; still less will they do so when analyzed in the appropriate geometrical fashion as mechanism demands. Only intentionality has this feature of directedness."
46. For a recent account of what exactly it means to say that Leibnizian monads are causally active, see Jorati 2017. On the activity of Berkeleyan spirits, see McDonough 2008; Lee 2012.
47. On early modern mechanism, see Hattab 2011; Hamou 2011.
48. See Ott 2009.
49. Cavendish writes: "No motion can be without perception, because every part or particle of nature, as it is self-moving, so it is also self-knowing and perceptive" (*Observations*, 113).

Literature

Adriaenssen, Han Thomas. *Representation and Scepticism from Aquinas to Descartes*. Cambridge: Cambridge University Press, 2017.

Ariew, Roger. *Descartes Among the Scholastics*. Leiden: Brill, 2011.

Bakker, Paul J. J. M., and Johannes M. M. H. Thijssen, eds. *Mind, Cognition and Representation: The Tradition of Commentaries on Aristotle's De anima*. Aldershot: Ashgate, 2007.

Burnyeat, Myles F. "Aquinas on 'Spiritual Change' in Perception." In *Ancient and Medieval Theories of Intentionality*, edited by Dominik Perler, 129–53. Leiden: Brill, 2001.

Cavendish, Margaret. *Observations upon Experimental Philosophy*. Edited by Eileen O'Neill. Cambridge: Cambridge University Press, 2001. (= *Observations*).

Conway, Anne. *The Principles of the Most Ancient and Modern Philosophy*. Edited and translated by Allison Coudert and Taylor Corse. Cambridge: Cambridge University Press, 1996. (= *Principles*)

Des Chene, Dennis. *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca and London: Cornell University Press, 1996.

———. *Spirits and Clocks. Machine and Organism in Descartes*. Ithaca and London: Cornell University Press, 2001.

Descartes, René. *Oeuvres*. Edited by Charles Adam and Paul Tannery, Paris: Vrin, 1982–1991. (= AT)

Geulincx, Arnold. "Metaphyica vera." In *Opera philosophica*, edited by J. P. N. Land, vol. 2. The Hague: Nijhoff, 1892. (= *Metaphysica vera*).

———. *Metaphysics*. Edited and translated by Martin Wilson. Birmingham: Christoffel Press, 1999. (= M, cited by part and section)

Glennan, Stuart, and Phyllis Illari, eds. *The Routledge Handbook of Mechanisms and Mechanical Philosophy*. London: Routledge, 2017.

Hamou, Philippe. "Quality and Sensory Perception." In *The Oxford Handbook of Philosophy in Early Modern Europe*, edited by Desmond M. Clarke and Catherine Wilson, 160–81. Oxford: Oxford University Press, 2011.

Hattab, Helen. *Descartes on Forms and Mechanism*. Cambridge: Cambridge University Press, 2009.

———. "The Mechanical Philosophy." In *The Oxford Handbook of Philosophy in Early Modern Europe*, edited by Desmond M. Clarke and Catherine Wilson, 71–95. Oxford: Oxford University Press, 2011.

Hume, David. *A Treatise of Human Nature*. Edited by David Fate Norton and Mary J. Norton. Oxford: Oxford University Press, 2000.

Jorati, Julia. *Leibniz on Causation and Agency*. Cambridge: Cambridge University Press, 2017.

Lee, Sukjae. "Berkeley on the Activity of Spirits." *British Journal for the History of Philosophy* 20, no. 3 (2012): 539–76.

———. "Occasionalism." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, Winter ed., 2016. https://plato.stanford.edu/archives/win2016/entries/occasionalism/.

Leibniz, Gottfried Wilhelm. *Sämtliche Schriften und Briefe*. Edited by Deutsche Akademie der Wissenschaften. Berlin: Akademie-Verlag, 1923ff. (= A)

Leijenhorst, Cees. *The Mechanisation of Aristotelianism: The Late Aristotelian Setting of Thomas Hobbes' Natural Philosophy*. Leiden: Brill, 2002.

Locke, John. *An Essay Concerning Human Understanding*. Edited by Peter H. Nidditch. Oxford: Clarendon Press, 1975.

Malebranche, Nicolas. *De la recherché de la vérité*. Edited by G. Rodis-Lewis. Oeuvres complètes I—III. Paris: Vrin, 1961–1964. (English translation: *The Search After Truth*. Translated by Thomas M. Lennon and Paul J. Oscamp. Cambridge: Cambridge University Press, 1997.)

Manning, Gideon, ed. *Matter and Form in Early Modern Science and Philosophy*. Leiden: Brill, 2012.

McDonough, Jeffrey K. "Berkeley, Human Agency and Divine Concurrentism." *Journal of the History of Philosophy* 46, no. 4 (2008): 567–90.

Nadler, Steven. "Knowledge, Volitional Agency and Causation in Malebranche and Geulincx." *British Journal for the History of Philosophy* 7 (1999): 263–74.

Nolan, Lawrence, ed. *Primary and Secondary Qualities: The Historical and Ongoing Debate*. Oxford: Oxford University Press, 2011.

Ott, Walter. "Causation, Intentionality, and the Case for Occasionalism." *Archiv für Geschichte der Philosophie* 90 (2008): 165–87.

———. *Causation and Laws of Nature in Early Modern Philosophy*. Oxford: Oxford University Press, 2009.

Pasnau, Robert. *Theories of Cognition in the Later Middle Ages*. Cambridge: Cambridge University Press, 1997.

Perler, Dominik. *Theorien der Intentionalität im Mittelalter*. Frankfurt a. M.: Klostermann, 2002.

———. ed. *Transformations of the Soul: Aristotelian Psychology 1250–1650*. Leiden: Brill, 2008 (special issue 46.3 of *Vivarium*).

———. "Perception in Medieval Philosophy." In *The Oxford Handbook of Philosophy of Perception*, edited by Mohan Matthen, 51–65. Oxford: Oxford University Press, 2015.

Schmid, Stephan. "Faculties in Early Modern Philosophy." In *The Faculties: A History*, edited by Dominik Perler, 150–97. Oxford: Oxford University Press, 2015.

Shapin, Steven. *The Scientific Revolution*. Chicago: University of Chicago Press, 1996.

Voltaire. *Dictionnaire philosophique*. Edited by René Pomeau. Paris: Garnier-Flammarion, 1964.

1 Suárez on Intellectual Cognition and Occasional Causation

Dominik Perler

1. Introduction: Problems of Abstraction

The Aristotelian idea of assimilation dominated epistemological debates far into the seventeenth century and played an important role in controversies about the relationship between causation and cognition. Advocates of this idea claimed that human beings cannot fully cognize a material thing unless their intellect assimilates the substantial form of that thing. This means, for instance, that we cannot acquire cognition of a horse that is standing in front of us unless our intellect grasps the form that structures this particular thing and makes it the very thing it is. Clear and simple as this thesis looks at first sight, it gives rise to a fundamental question: how can we ever get hold of a form? Obviously, we cannot grasp or somehow absorb it by simply looking at a material thing. All we can detect when perceiving it is a bundle of accidents: a certain color, size, shape, etc. How do we get from such a bundle of accidents to the substantial form?

Many scholastic Aristotelians, ranging from Thomas Aquinas to Eustachius a Sancto Paulo and other seventeenth-century textbook authors, answered this question by positing a cognitive process that involves at least two steps.[1] In the first step, they claimed, we need to form a sensory representation, called a *phantasm*, which enables us to grasp the material object as a unified thing with a number of specific accidents. Thus, when seeing a horse in front of us, we first need to come up with a phantasm that represents it as a large, brown, galloping thing. In the second step, we need to use our intellect to produce another representation, called an *intelligible species*, which enables us to grasp the substantial form that is responsible for all the essential features of a thing. Thus, once we have formed a phantasm of the galloping horse, we need to bring about an intelligible species that makes features like *being a mammal* and *having a respiratory system* cognitively present—features that can be found in all horses and are indispensable for them. The species representing these features has to be abstracted from the phantasm, for we cannot produce it out of nothing; nor can we simply take it out of our intellect, for there

is no innate representation. Rather, we need to extract or abstract it from what is given to us on the sensory level. It is precisely this process of abstraction that enables us to assimilate the substantial form.

So far, so good—or rather, so bad, as early modern anti-Aristotelians would have replied. In their view, this two-step process raises more problems than it solves, even if we are willing to accept the basic idea that the cognitive process starts with perception. The second step in particular looks quite enigmatic. How can the intellect ever abstract anything from a phantasm that has been produced on the sensory level? The intellect is fully *immaterial*, as all Aristotelians affirmed, whereas the phantasm present in the body is *material*, so how can there be a causal relation between them? But let us assume for the moment that such a relation is possible. What does it mean that the intellect acts upon the phantasm and abstracts an intelligible species from it? Does the intellect sort out all the features that are represented by the phantasm and take just the essential ones? But how does it know which features are essential and which are not? After all, it is not evident that being brown and big are accidental features, whereas having a respiratory system is an essential one. How can the intellect tell the difference when it deals with horses? And even if we suppose that it somehow knows how to do that, it is still difficult to understand what it really does when it abstracts essential features. Does it extract them from a bundle of features and shift them, as it were, from the sensory to the intellectual level? How would that work? Abstraction looks like the miraculous transfer of essential features from one realm to another.

It was not just critics of the Aristotelian theory of assimilation who were puzzled by these problems of abstraction. Francisco Suárez, a staunch defender of Aristotelianism, already realized that the standard account of the two-step process raises serious problems. Criticizing earlier authors who took abstraction to be quite natural and unproblematic, he remarked:

> one should note that the species cannot be said to be something that is potentially or actually abstracted from phantasms as if the species were first mixed up with phantasms, from which it would then be separated by the agent intellect and transferred to the possible intellect. It would be childish to think that. For in what way would the spiritual be mixed up with the material? And how would an accident migrate from one subject to another?[2]

Suárez here points out the crucial problem. What do his predecessors want to say when they claim that the intellect "abstracts" a species? They can hardly mean that there is first some kind of mixture consisting of a material phantasm and an immaterial species, and that the intellect then takes just the immaterial part out of it. This is impossible, because a

material item and an immaterial item cannot be mixed together. And the intellect cannot extract anything from the whole mixture, for it cannot descend, as it were, to the sensory level and take something out of it. Nor can a material item somehow move up to the intellectual level. So how can there ever be an interaction between these two levels? As long as this question remains unanswered, the entire account of abstraction remains obscure.

Given this fundamental problem, it is hardly surprising that Suárez was dissatisfied with the standard account of cognition. In the following, I want to examine how he replaced it with a new one that avoided positing an interaction between the sensory and the intellectual level. To do that, I will proceed in three steps. First, I will take a closer look at Suárez's critique of traditional theories of cognition (Section 2). Then I will reconstruct his own theory, focusing on his explanation of the relationship between sensory phantasms and intelligible species (Sections 3–4). Finally, I will draw some conclusions and point out the consequences of Suárez's transformation of the Aristotelian model for the development of non-Aristotelian theories of cognition in the early modern period (Section 5).

2. The Failure of Traditional Cognitive Theories

Suárez presents his own theory of cognition as an alternative to the theories that were available in his time. It is therefore important to take a look at these theories and to see why he rejects them. The first theory he considers is the Platonic theory that takes the human intellect to be an immaterial entity that is distinct from the body and has innate knowledge of all things.[3] Rephrased in scholastic terminology, this means that the intellect has inborn (or innate) species of all things. The main idea of this theory can then be summarized as follows:

(1) *Innatist model:* the immaterial intellect can think about all material things because it has innate species that represent all of them.

This theory has the clear advantage that there is no interaction that needs to be explained. Thus, I can think about a horse without being in contact with a material horse and without acquiring a phantasm. My intellect is, as it were, a self-sufficient cognizer that needs no input. But simple and elegant as this theory looks, it has some serious shortcomings, as Suárez is quick to point out. First of all, it seems pointless to have a body and to produce phantasms. Whether or not I really see a horse and have a horse phantasm, I can immediately think about a horse. Why then would I ever need to come up with a phantasm? Second, it seems that I never make any progress in my thinking. Since my intellect always possesses species of all things, I can always think about them, no matter what the

objects in my environment are. I simply need to appeal to the species that are, as it were, waiting to be used. This clearly goes against our experience, as Suárez dryly remarks.[4]

Now, one could object that Suárez simplifies the Platonic theory. It does not need to be understood as a theory that posits innate species as *actual* representations that can be used at any time. Species are nothing but *dispositional* representations that need to be actualized; and for an actualization, phantasms are clearly required. Thus, thanks to the innate horse species, I have the disposition to think about a horse. But I cannot actually think about a horse unless I see one and acquire a phantasm that represents a particular horse with some particular features. The phantasm is therefore not superfluous: it serves as the trigger that is indispensable for actualizing a dispositional horse representation.

This is an argumentative move every Platonist could (and should) make.[5] But it immediately leads to an interaction problem. If the intellect is indeed an immaterial entity that is distinct from the body, as Platonists assume, and if the species present in the intellect is therefore an *immaterial* dispositional representation, it is questionable how it can be triggered by a *material* phantasm in the body. How, for instance, should the sensory image of a brown animal with a flying mane trigger the horse species in my intellect? As long as it is not clear how something material can act upon the immaterial intellect, this actualization remains mysterious.

Given this crucial problem, it is not surprising that Suárez dismisses the innatist model and turns to another one that was more popular in his time. He attributes it to Cajetan and presents it as a model invoking a special form of illumination.[6] Unlike the innatist model, it insists on the fact that intelligible species are acquired, and it explains this process as follows: whenever a phantasm is present, the intellect illuminates it and thereby makes the essence of a given thing visible, that is, intelligible. It is on the basis of this process that the intellect then produces a species, which represents nothing but the essence. Thus, when I have acquired a phantasm of a horse, my intellect becomes active and somehow "screens" it: like an X-ray machine that makes nothing but the bones visible, leaving muscles and other soft tissues aside, the intellect makes nothing but the essential features visible, leaving all the accidental features aside.[7] Once it has done that, it produces a kind of intellectual X-ray photograph that represents just the essential features. This explanatory model can be summarized as follows:

(2) *Illuminationist model:* the immaterial intellect can think about all material things because it can make their essences visible and represent them by means of species.

Clearly, this model takes into account that there needs to be an experiential basis for our thinking. But despite its empiricist flavor, Suárez

does not accept it. Why not? He thinks that one cannot make sense of the illumination process.[8] For what does it mean that the intellect "illuminates" a phantasm? The intellect cannot approach it and shed light on an essence that is somehow hidden in the dark. Nor can it separate the essence from all accidental features. No matter how close the intellect comes to the phantasm, it always remains an immaterial faculty that cannot get in touch with a material item.

An advocate of the illuminationist model could immediately reply that this critique is based upon a misunderstanding. After all, the intellect does not need to get in touch with the phantasm. Nor does it need to separate the essential features from the accidental ones. All the features remain together when the phantasm is illuminated, just as all the bones and soft tissues remain together when an X-ray machine screens a body. The essential features are simply highlighted and therefore shown as a special set of features as soon as the intellect screens them.

Suárez would hardly be satisfied with this reply. Two crucial problems still remain unsolved. The first has to do with the activity of the intellect. Suppose the intellect could indeed highlight the essential features and distinguish them from the accidental ones. Obviously, it could do that only if it had access to both types of feature. But how could it ever reach them? Because all the features are present in the material phantasm, no access seems possible. Unlike a material X-ray machine that can approach and screen the parts of a body, which are also material, an immaterial faculty cannot screen something material. Hence, it makes no sense to say that it illuminates the phantasm with some kind of immaterial light; it is simply not the right kind of light.

The second problem has to do with the features that are supposed to be illuminated. Supporters of the illuminationist model point out that the features highlighted by the intellect are not just essential but also universal ones that are to be found in many individuals of the same kind.[9] Thus, when the intellect highlights the essential features of a horse, it makes visible features such as *being a mammal* and *having a respiratory system*—features that can also be found in all other horses. But when the intellect sheds light on a single phantasm how does it know which features are universal and which are not? After all, the features to be found there are all particular ones. Thus, when I acquire a phantasm of a horse, I have an image that presents an animal with *this* nose, *this* color, and *this* shape. How can my intellect know that having a nose, and hence a respiratory system, is a universal feature that is exhibited by all horses? Simply illuminating or screening a single phantasm seems not to be enough. It would be enough if the intellect already knew which features are not only essential but also universal, but how can it know that if it lacks innate knowledge?[10]

Given these problems, Suárez dismisses the illuminationist model and discusses a third one, which could be called the "cooperation model."[11]

Just like the illuminationist model, it emphasizes that there are no innate species; all the species have to be produced on the basis of phantasms. But unlike the illuminationist model, it stresses that it is not the intellect alone that produces them; rather, the intellect and the phantasm work together. To be precise, they cooperate as principal agent and instrument: the intellect reaches out for a phantasm and uses it as its instrument, and the phantasm then somehow feeds it with the content it needs for the production of a species. The main thesis of this model can be summarized as follows:

(3) *Cooperation model:* the immaterial intellect can think about all material things because it can unite itself with phantasms, which present the essence and thereby provide the content for the production of species.

In this model, there is a kind of division of labor. The intellect does not need to do all the work; it just has to get hold of a phantasm. Once it has done that, the phantasm becomes active and presents the content that the intellect needs.

However, this model is as unsatisfactory as the illuminationist model.[12] For what does it mean that the intellect can unite itself with the phantasm? An immaterial faculty cannot literally get in touch with a material entity. Like the illuminationist model, this model assumes that there can be some contact between two items that belong to different realms, but it does not explain how this would be possible. This is why the union is simply postulated rather than metaphysically grounded. Moreover, even if a union were somehow possible, the cooperation model fails to make clear how the phantasm could offer the intellect what it needs. Suppose my intellect were in fact united with a horse phantasm. How could this phantasm ever present the essence of a horse to the intellect? After all, the phantasm is a complex image that presents a mixture of features, both essential and accidental. The intellect would still have to extract the essential features. But it is utterly unclear how it would be able to do that. How would it know what to extract? As in the previous model, the crucial problem remains unsolved.

3. The Theory of Occasional Causation

Suárez is not the only commentator on scholastic theories of cognition who takes them to be deeply flawed. In more recent times, Peter King has reached the same conclusion, claiming that these theories created an insoluble problem, which he calls the "problem of transduction."[13] The scholastic theories all assumed that a material input needs to be mapped onto or transformed into an immaterial output, but neglected to identify the appropriate transducer that can do this. This is why their entire

research program collapsed and was eventually replaced by a new one that no longer appealed to a mysterious relation between phantasms and species.

Suárez is more confident. He does not think that one should abandon the main idea that species need to be produced on the basis of phantasms, nor does he give up the thesis that species are immaterial while phantasms are material. But he rejects the thesis that the intellect acts upon phantasms or vice versa. How then can the intellect ever come up with the species it needs? To answer this question, Suárez introduces two crucial theses. First, he points out that the intellect needs to be "determined" by a phantasm when it produces a species, but he hastens to add that determination does not amount to efficient causation:

> This determination does not occur through some efficacy of the phantasm, but only through the fact that it offers the material and, as it were, an exemplar to the agent intellect.[14]

It is significant that Suárez distinguishes between efficiently *causing* something in the intellect and merely *offering* something to it. On his view, causing amounts to producing or "pouring" (*influere*) being into something else.[15] But the phantasm does not "pour" anything into the intellect, for it cannot act upon it. Why not? The main reason has to do with the hierarchical order between material and immaterial things. Following a long Augustinian tradition, Suárez takes it for granted that immaterial things stand higher in the ontological hierarchy than material ones; and what stands higher cannot literally be affected by a lower thing; consequently, the intellect cannot be affected by the phantasm. This is an argument Suárez already adduced against the cooperation model. Even if we accept the questionable assumption that there is some kind of union between intellect and phantasm, we cannot concede that the phantasm functions as an instrument that acts upon the intellect. Being material, it can never be "elevated" to the level of active things; hence it can never affect the immaterial intellect.[16] The same criticism applies to a theory that assumes not a union but simply a relation of efficient causation, for a lower thing can never act upon a higher one.

Given this restriction, bottom-up causation is ruled out. But couldn't there be top-down causation? Why shouldn't it be possible for the intellect as the higher thing to act upon the phantasm as the lower thing? Suárez rejects this possibility in light of his characterization of the faculties of the soul. On his view, all the faculties are causes; they are even efficient causes, because they produce cognitive devices and acts.[17] Thus, the sensory faculty produces phantasms and acts of perception, whereas the intellect produces species and acts of thinking. The important point, however, is that both faculties are *immanent* causes. This means that they cause everything in themselves.[18] Thus, whatever the intellect does,

its products are always located in itself. It cannot reach out to another faculty and produce or transform something in it. That is why Suárez emphasizes that the intellect can do nothing more than produce species in itself when phantasms are produced in the sensory faculty. Even a higher immanent cause cannot intervene in a lower one.

This thesis gives rise to a simple but fundamental question: when does the intellect produce a specific effect in itself? When, for instance, does my intellect produce a horse species and not a cat species or something else? Suárez would answer this question by referring to the already mentioned "determination" of the intellect: the presence of a horse phantasm in the sensory faculty determines the intellect to producing a corresponding horse species.[19] But what is this determination if it is not some sort of efficient causation? Unfortunately, Suárez is not explicit, but his claim that the phantasm simply "offers the material" without transmitting anything can be best understood as a relation of *occasional causation*. This means that a phantasm, produced by and existing in the sensory faculty, only provides the right kind of occasion for the intellect to become active—an occasion that is necessary for the production of a species. Or, to put it in modern terms, a causal statement is to be formulated as a conditional statement: *if* a phantasm is present, *then* there is an appropriate occasion for the production of a species. It is important to notice that occasional causation does not amount to occasionalism.[20] According to the doctrine of occasionalism, which was defended both before Suárez (e.g., by al-Ghazali) and after him (e.g., by Malebranche), God is the only real cause, and natural things and events are nothing but occasions for his acting.[21] But Suárez does not hesitate to affirm that there are plenty of causes in the natural world; all he denies is that the phantasm present in the sensory faculty can be an efficient cause for the intellect. It can only be an occasional cause, since it can only fix the condition under which the intellect becomes active. This means for the horse example that my intellect cannot produce a horse species unless there is a horse phantasm in my sensory faculty. But fixing the right kind of condition is not the same as causing, for it is the intellect alone that efficiently causes the species.

But why, one may wonder, can the phantasm fix the right kind of condition? For an answer to this question, we need to take a look at Suárez's second main thesis. He claims that the intellect and the sensory faculty (or faculty of imagination) are present in the same soul, which coordinates them:

> One should note that the faculty of imagination and the intellect of a human being are rooted in a single soul; and this is the reason why they have an order and harmony in their activities.[22]

The idea is that there is a common basis for the sensory faculty, which is responsible for producing phantasms, and the intellect, which is

responsible for producing species. Given this basis, the production of phantasms goes hand in hand with the production of species. Or to put it again in conditional terms: *if* the sensory faculty produces a certain phantasm, *then* the intellect produces the corresponding species. Lurking in the background of this coordination thesis is a conception of the soul that clearly distinguishes between the soul itself and its faculties. Like Aquinas and many other predecessors, Suárez assumes that there is just one soul in a human being. But unlike them, he affirms that the vegetative, sensory, and intellectual faculties are added to it as special entities.[23] Metaphysically speaking, they are qualities with real power, and hence entities that can produce their own activities. It is therefore not the soul that produces acts of seeing, but the sensory faculty; nor is it the soul that produces acts of thinking, but the intellect, which is another faculty. Suárez even goes so far as to claim that the faculties are really (and not just conceptually) distinct from the soul.[24] To be sure, they are not free-standing entities; they are produced by the soul and exist in it. The soul is a kind of basic power station that brings about the faculties, and each of them then has its own range of activity.

The important point is that the soul is not just the initial producer of the faculties, but also their unifier and coordinator. It guarantees that their activities will always be well adjusted. Suárez illustrates this point with a nice example.[25] When someone thinks about an object and takes it to be good, he immediately wants to possess it, or even love it. This would not be possible if there were no coordination between the intellect, which is responsible for thinking, and the will, which is responsible for wanting or loving. So there must be something that ensures their coordination, and this is the underlying soul that links the activity of the will to the activity of the intellect. The same is true for the activities of the sensory faculty and the intellect: there must be an underlying soul that coordinates them so that an activity of thinking is always in accordance with an activity of perceiving or imagining. Suárez speaks about a "connection" (*connexio*), "conjunction" (*coniunctio*), or even "harmony" (*consonantia*) of the faculties that is guaranteed by the fact that they are rooted in the same soul.[26]

I hope this metaphysical background makes clear why Suárez thinks that a coordinated production of phantasms and intelligible species obtains. There is not just a type–type coordination, but a token–token one: *if* the inner sense produces the particular phantasm *x*, *then* the well-coordinated intellect produces the corresponding species *y*.[27]

But how does the intellect produce it when this condition is fulfilled? Some commentators think that it simply actualizes a cognitive entity that it already possesses in a potential form. Thus, James South claims "that there is indeed a sense in which Suárez accepts the innateness of intelligible species."[28] He adduces the following passage to corroborate his claim:

> For our intellect stands, as it were, between angelic intellects and sensory faculties. The angelic intellect has by its nature innate species of all things. These species flow, as it were, from the power of the intellect, somewhat as passions flow from the essence. But a sensory faculty, above all the external senses, lack species and receive them from external objects. Now, our intellect lacks by its nature species; in that respect it falls short of the perfection of an angel. Nevertheless, it has some agreement with it, namely the following: as soon as our soul cognizes a thing through the faculty of imagination, a species representing this thing flows from the intellect. So, this efficacy occurs more in the way of a certain emanation of the species from the intellect.[29]

Note that in this passage Suárez attributes a middle position to the human intellect. Unlike the higher angelic intellect, which has by its nature innate species (all of them are directly implanted by God), the human intellect does *not* have innate species. And unlike the lower sensory faculty, which is purely receptive and therefore passive, the human intellect is *not* a purely passive faculty. It needs to acquire species, and it can do that in an active way, namely, by producing them when the sensory faculty comes up with phantasms. Here we see again the crucial condition that needs to be fulfilled: the intellect produces species only if phantasms are present. The important point is that the intellect is nevertheless active; it really produces species.

Why then does James South take Suárez to be an innatist? He seems to assume that the "flowing" (*dimanare*) in the human case is to be understood in the same way as in the angelic case, namely, as the actualization of species that are already present. But nothing in the text supports this reading. On the contrary, Suárez explicitly says that "our intellect lacks by its nature species," and he does not add that it lacks them only in an actualized form. That is why the intellect cannot simply take species out of some kind of storage room. They do not flow from the intellect unless they are produced by it. In other passages Suárez explicitly speaks about production.[30] What he stresses when speaking about a "flowing" is the fact that species really stem from the intellect. They do not come from the outside, say from some other faculty or from God. The Neoplatonic language Suárez uses should therefore not mislead us into thinking that he appeals to an innatist model. If he did so, he would be flatly contradicting himself, for he clearly rejects this model, as was made clear in Section 2.[31]

If we take seriously Suárez's commitment to an orthodox Aristotelian conception of the intellect (i.e., the intellect has no innate species) and to a rather unorthodox conception of the soul (i.e., there is a real distinction between the soul and its faculties), we can see how he arrives at a model of occasional causation for explaining the production of species: if the inner sense produces a phantasm, then the intellect produces a

corresponding species, because both faculties are present in the same soul and act in accordance with each other. It is therefore not a mysterious illumination or an equally mysterious transformation of the phantasm that leads to a species, but inner production: a new cognitive entity comes into existence when the intellect becomes active.

4. Cognition of Essences

There is no doubt that this theory avoids many difficulties, but it brings us back to a vexing problem that we already encountered when discussing the illumination model and the cooperation model. How does the intellect know what it should represent when it produces an intelligible species? In particular, how does it know which features of a given thing are essential and which are not, so that it can produce an intelligible species that represents nothing but the essential features? Suppose my sensory faculty produces a phantasm representing a horse, and suppose my intellect immediately produces a corresponding species. How does my intellect know that it should come up with a species that makes the essential features *being a mammal* and *having a respiratory system*, and no other features, cognitively accessible? If it has no innate knowledge of these features, it seems to be unable to isolate and apprehend them. And because the phantasm cannot act upon the intellect, there is no way of informing the intellect about the features it should take into account.

Suárez is fully aware of this problem and therefore abandons the idea that the task of the intellect is to pick out and represent essential features. He emphasizes that "by means of its power, the agent intellect produces a spiritual species that represents the same nature as the phantasm, though not in a material way, as the phantasm represents it, but in some spiritual way."[32] So the species does not differ from the phantasm in its representational content, but only in its representational mode. In making this claim, Suárez clearly breaks with a long tradition, running from Aquinas to Cajetan, which distinguishes between two types of content. According to authors in this tradition, the phantasm represents a bundle of particular features, while the species represents nothing but essential and universal features, and full representation is possible only if the thinking person uses both cognitive devices.[33] For Suárez, this separation of two contents does not make sense, because at the beginning of the cognitive process the intellect has no resources to create its own content. There can be a difference only with respect to the mode of representation, not the content.

But how should we understand this difference? Let me sketch an answer by introducing a modern comparison. When you write a text on your computer with a word processing program, say Word, and then create a PDF file, you convert it from one format into another. Not a single letter will be changed or deleted; rather, the entire text will be preserved, and it will be accessible in a different format. One could even say that

it will be present in a different mode: there will be a transition from the Word mode to the PDF mode. In a similar way, the transition from a phantasm to a species is nothing but a change of the representational mode. All the features present in the phantasm will also be present in the species. Nothing will be changed or deleted; the features will simply be present in a new format, which is spiritual or immaterial.

If we understand Suárez's claim in this way, we can see that abstraction amounts only to dematerialization. We can also see that he clearly differs from Aquinas in claiming that the intellect, just like the sensory faculty, represents a *particular* thing with *particular* features when it produces a species.[34] However, in making this point he seems to ignore the main motivation that originally led to the species theory being introduced. After all, it was intended to show that we should move from the representation of particular features to the representation of essential and universal features. Does Suárez neglect this point?

Not at all. He concedes that it is important to grasp essential and universal features, but he emphasizes that one cannot do this simply by focusing on a single thing or a single phantasm and by extracting something from it. One should rather compare different things, realize that there are both similarities and dissimilarities between them, and identify the features that are similar.[35] It is only this process of evaluating many things that eventually leads to the grasping of essential and universal features. Thus, only when observing the horse over a longer period of time will I see that it always breathes and always digests food, and only then will I realize that these are essential features—features without which the horse cannot exist and which always remain the same. If I then compare this horse to other animals, I will realize that these features can be found in every horse, and that they are therefore in some sense universal. Suárez calls them "physical universals," thereby stressing that there are some patterns or features that we can detect in more than one thing in the physical world.[36] To be sure, this does not mean that he accepts universal natures or essences that exist in addition to particular things. On his view, nothing but particular things exist in the physical world, but these things display some common natures, and thanks to these natures they stand in similarity relations to each other. When we pay attention to these relations we can form universal concepts, which we then apply to many things.

Lurking in the background of this account is a theory of universals that accepts nothing but particular things with instantiated natures. This is a complex theory that poses a number of problems, but I do not want to enter into the details here.[37] All that matters is the function the metaphysical theory has for the account of cognition. According to Suárez, we can discover that there are essential features in material things; we can even find out that there are similarity relations between them, and we can therefore form universal concepts. But this is never possible through

a mere contemplation of isolated things. We can never, as it were, stare at a thing (or at the phantasm we receive from it), detect some special features, and thereby grasp an essential and universal nature. We need instead to go through a long process of comparing and assessing many particular things. Only then will we be able to detect both similarities and dissimilarities among them, and only then will we eventually find out what constitutes their nature.

This emphasis on a time-absorbing process shows again that Suárez rejects the illuminationist model. To return to the modern comparison I introduced earlier, one could say that he rejects the idea that there is some kind of intellectual X-ray machine that makes the essential and universal features immediately visible. It is not at the beginning of the cognitive process that these features are revealed, but at the very end. And it is not even certain that they will ever be revealed. We can go wrong when we compare and classify things and often need to reassess our classification on an empirical basis. Thus, it might well be that we first tend to see nothing but similarities among animals swimming in the sea, say sharks and whales, and that we classify all of them as fish. Only when we inspect them more carefully will we eventually find out that whales are mammals; this will lead us to revise our classification. This modern example shows that we can make mistakes when indicating the essence of a certain type of thing and that we need to come up with fine-grained descriptions if we want to arrive at a perfect and complete grasp of the essence. And in many cases we will never be able to indicate the full essence.

Cognition is therefore not to be understood as a simple two-step process, as it seemed at first sight, but as a more complicated one. In the first step, we produce a material representation of a particular thing with particular features; in the second step, we produce a dematerialized representation of the very same thing; and in the third step, after making many comparisons, we finally produce an immaterial representation of the essence or nature of that thing. Suárez even introduces an additional fourth step. He claims that, strictly speaking, we do not yet represent a thing or a substance when we have made the third step, because we have only grasped a bundle of features, but we have not been able to grasp a bearer or substratum of all these features. No matter how much we try, we will never be able to grasp one because it will never be empirically accessible. We can only make the inference that there must be a bearer or substratum because both accidental and essential features are dependent entities that cannot exist on their own; they need to be anchored in an independent entity. This is how we arrive at the insight that there must be a substratum—an underlying substance—that holds together all the features and provides a stable ground for them. Strictly speaking, therefore, we never directly apprehend a substance. We come to know it through a "discursive process" (*discursus*), as Suárez points out.[38] To be

sure, this does not mean that we simply postulate it. Unlike later critics of the substance theory, Suárez has no doubt that there must be a substance underlying all the accidental and essential features. On his view, it would make no sense to accept free-floating bundles of features. Whenever there is a feature like being brown or being a mammal, it must be a feature of something; hence, there must be an underlying substance. But this does not mean that this substance can be grasped directly. If it is grasped at all, this happens in an indirect way, namely, through reasoning or a discursive process. At the end of this process the intellect produces a special species that represents just the substance that is distinct from and presupposed by all the features.

So the cognitive process turns out to be even more complex than it first appeared, and it requires more cognitive devices than a single intelligible species. At least three types of species are required on the intellectual level: (i) a species representing a mixture of accidental and essential features (produced on the basis of a phantasm), (ii) a species representing just the essential features (produced on the basis of a process of comparison), and (iii) a species representing the substance underlying all the features (produced on the basis of a process of reasoning). It is only the production and use of all of these cognitive devices that makes full cognition of a material thing possible.

5. Conclusion

I hope it has become clear that Suárez works with a traditional theory of cognition by appealing to species as necessary cognitive devices. However, he transforms this theory by denying that immaterial species are abstracted from material phantasms and by rejecting the thesis that species immediately represent the essential and universal features of material things. Does he thereby solve the problems posed by traditional theories? I have already pointed out that according to Peter King species theories are doomed to failure because they do not answer the basic question of how a material input can be mapped onto or transformed into an immaterial output.[39] Does Suárez offer an answer to this question? As we have seen, his answer relies upon a strong metaphysical assumption. He claims that the sensory and the intellectual faculties are rooted in the same soul, which acts as a unifier and coordinator. Hence, whenever the sensory faculty produces a material phantasm, the intellectual faculty brings about a corresponding immaterial species, without there being an interaction between the two faculties. The underlying soul guarantees that they act in a well-coordinated way.

One could immediately object that this is hardly a convincing solution. It seems as if Suárez is simply positing a hidden soul as some kind of homunculus that can read the material input stemming from the sensory faculty and transform it into an immaterial output in the intellectual

faculty. But it remains a mystery how this homunculus acts—in particular, how it transforms something material into something immaterial.

This objection correctly points out that Suárez posits an underlying and coordinating soul, thereby introducing an additional entity. But one should be aware that he does not introduce it as a homunculus that reads some material input and transforms it into an immaterial output. Rather, it is the two faculties that do all the work; that is, the sensory faculty first produces a phantasm, and the intellect then produces a completely new device—namely, the species—without there being any transfer of the phantasm to the intellect. The coordinating soul does not work on the phantasm, nor does it transform it into a species. It only makes it possible that the production of the species be immediately connected with the production of the phantasm. To use the computer analogy again, one could say that the soul is like an operating system that coordinates the program responsible for Word documents with the program responsible for PDF documents. The operating system does not produce any text, nor does it transform a text from one format into another. The two software programs do all the work. The operating system simply coordinates these two programs in their activities. Likewise, the soul only coordinates the two faculties. It has no cognitive role, because it does not read or interpret phantasms, nor does it have a causal role in the narrow sense, because it does not bring about a cognitive device. The role it plays could be called a system-building role: it connects the faculties, thereby creating a well-functioning system of faculties.

It is quite evident that there is a price to be paid for this conception of the soul. Unlike earlier Aristotelians, who never spoke about the soul as a special entity that is added to the faculties, Suárez does indeed conceive of it as such an entity. The entire soul is no longer a simple thing, but rather a system consisting of many things, which are distinct entities, each endowed with its own power. In modern terminology, one could say that Suárez turns the soul into a modular system.[40] On his view, there are many modules, which are all causally independent (or "encapsulated," as philosophers of mind say), and in addition, there is something that unifies them. To give a comprehensive account of the soul we need to describe the activity of each module inside the unified system. This is quite a radical departure from the traditional Aristotelian theory emphasizing the simplicity and indivisibility of the soul.[41]

This departure has at least two consequences that proved to be important for later discussions. The first has to do with the activity of the entities inside the unified system. Since they are encapsulated, they all produce their own effects, and Suárez does not hesitate to speak about *efficient* causation. That is, the sensory faculty efficiently causes phantasms, and the intellect efficiently causes species as well as acts of thinking. This means, of course, that the soul becomes a system of efficient causes. To be sure, Suárez does not give up the traditional claim that the

soul underlying all the faculties is a formal cause, and that it is precisely because of this function that it can structure, vivify, and unify a human being.[42] But it is quite remarkable that the activities inside the soul are characterized in terms of efficient causation. To put it crudely, one could say that the soul is portrayed as a complex machine with different parts, each of them producing its own activities. Of course, it is an *immaterial* machine and should therefore not be conflated with a machine in the later mechanistic sense. But Suárez prepares the ground for a machine model by turning the Aristotelian soul, which was initially conceived as an undivided formal cause, into a system of efficient causes.[43]

The second consequence concerns the relationship between the causes inside the soul, in particular between the sensory and the intellectual faculties. As has become clear, Suárez rejects every interaction between them. This is an important claim, especially in light of early modern debates about the so-called interaction problem. It has often been argued that Descartes found a way of avoiding interaction between the material body and the immaterial mind by appealing to a relation of occasional causation.[44] For instance, when talking about the ideas of pain and color, he insisted that these ideas are not efficiently caused by movements in the brain. They rather arise "on the occasion of certain corporeal motions,"[45] and there need not be any similarity between the corporeal motions and the concomitant ideas. There is nothing but a certain regularity: whenever the corporeal motion *x* arises, its corresponding idea *y* arises as well. The important point is that ideas in the mind arise in a natural way, but not through a mysterious interaction between body and mind. It is rather a coordination of body and mind, given by nature, that makes a correspondence between movements in the brain and ideas in the mind possible. Now, this is exactly the thesis we already find in Suárez. Of course, he does not formulate it in terms of Cartesian substance dualism, nor does he refer to nature or God as an external coordinator. He rather uses an Aristotelian framework, speaking of faculties, and he appeals to the underlying soul as an internal coordinator. But he also emphasizes that a material item in the sensory faculty cannot act upon the immaterial intellect, and he points out that the material item can only "offer something" or give an occasion to the intellect to become productive. When we pay attention to this striking parallel in the argumentative strategies of Suárez and Descartes, we can see that the model of occasional causation is not a seventeenth-century invention. Nor is it the product of a distinctively Cartesian theory. It was already worked out in a late Aristotelian context in which the causal relation between material and immaterial items became more and more problematic. In a nutshell, the dualist transformation of the Aristotelian framework paved the way for a new model of causation.

There is another point of innovation that deserves attention. I pointed out at the very beginning of this chapter that Aristotelians started with

the basic idea that we cannot cognize a material thing unless we assimilate its form; they added that the very same form that is instantiated in the material thing eventually comes to exist in our intellect. When we look at Suárez's theory, we can see that he radically changes this basic idea. On his view, we cannot literally receive or assimilate the form that exists in a material thing; we can only go through a cognitive process that first leads to a material representation of a particular thing, then to an immaterial representation of the very same thing, and finally to a representation of the essential features of that thing. But even in the last step, we do not literally get the form of that thing. Rather, we produce a cognitive device that represents certain features that we have detected in that thing and in many others that are similar to it. Since these features are invariable and constitutive for all these things, we take them to be essential. But they are simply the features we have identified as the relevant ones in a long process of comparing and evaluating many particular things.

It is at this point that we see the transition from a theory of assimilation to a theory of representation in the modern sense. Cognizing a thing no longer amounts to abstracting its form and absorbing it; rather, it amounts to producing a representational device that serves to pick out the relevant features of a material thing. Since it is our intellect that produces a representational device and picks out the relevant features, cognition is fundamentally an active process, not a passive one. Of course, Suárez would never have put it in these radical terms: trying to be faithful to the Aristotelian tradition, he mostly used traditional terminology. But his critique of the traditional species theory led to a reinterpretation of the entire cognitive process. As is often the case with processes of innovation, new ideas are presented in old language, and we cannot see what is really new unless we closely study how this language has been reinterpreted against the background of new assumptions.[46]

Notes

1. For a comprehensive overview, see Spruit 1994–95. For more detailed analysis, see Pasnau 1997; Perler 2002; Adriaenssen 2017. To be sure, the standard theory had already been attacked by some medieval authors, for instance by Peter John Olivi and William Ockham. But it nevertheless remained the dominant Aristotelian account of cognition far into the seventeenth century. It can be found in Eustachius a Sancto Paulo's influential *Summa philosophiae quadripartita*, tertia pars physicae, tract. 4, q. 7.
2. *De anima* IV, cap. 2 (ed. Alvarez 1856, 721b): "est observandum, speciem non dici abstrahibilem, vel abstrahi a phantasmatibus, quasi ipsa species prius esset immixta phantasmatibus, unde postea separetur ab intellectu agente, ac transferatur in possibilem: hoc enim puerile esset cogitare, quo enim modo spirituale mixtum esset materiali? Quo item migraret accidens de subjecto in subjectum?" The new edition states the same problem in more sober terms. *De anima* 9.2.17 (III, 104): "Hoc enim non est intelligibile, nam spirituale quomodo esset immixtum materiali?"
3. *De anima* 9.2.2 (III, 80). Suárez refers to Plato's *Meno* as his main source.

4. *De anima* 9.2.2 (III, 80), second counterargument.
5. Some scholastic authors in fact made this move. For instance, James of Viterbo claimed that the material phantasm does not cause anything in the immaterial intellect, but triggers innate dispositions (*aptitudines*) that are present in the human intellect right from the beginning. See Côté 2010, 14–21.
6. *De anima* 9.2.5 (III, 82–84). Note that Suárez discusses the model of natural illumination, leaving out the model of supernatural (or divine) illumination, as it was prominently discussed by Henry of Ghent and his successors. On various illumination theories, see Schumacher 2011.
7. I borrow this comparison from Cory 2015, 610–11.
8. *De anima* 9.2.6 (III, 84).
9. Aquinas famously makes this claim in *Summa Theologiae* I, q. 86, art. 1, and Suárez reports it in *De anima* 9.2.5 (III, 84).
10. It is therefore not surprising that some modern commentators, just like Suárez, see insurmountable problems. When commenting on Aquinas's account of illumination, Pasnau 2002, 318, remarks: "His account of agent intellect seems to appeal to nothing more than a kind of magic." Other commentators are more optimistic, but only because they reject the idea that illumination involves a process of separating or isolating essential features. For a sophisticated account, see Cory 2015.
11. *De anima* 9.2.7 (III, 86–88).
12. *De anima* 9.2.8 (III, 90).
13. King 1994, 110–11.
14. *De anima* 9.2.12 (III, 94): "Haec determinatio non fit per efficientiam aliquam ipsius phantasmatis, sed per hoc solum quod materiam praebet et quasi exemplar intellectui agenti."
15. See *Disputationes metaphysicae* (= *DM*) 12.2.4, and a detailed analysis in Schmid 2015.
16. *De anima* 9.2.9 (III, 92): "sed res materialis ex se nihil potest agere circa rem spiritualem, neque habere actionem propriam circa illam; ergo non potest elevari ut instrumentum ad illam actionem."
17. *De anima* 5.4.10–15 (II, 360–66).
18. Suárez explicitly rules out that their effect is produced in or transferred to another faculty. See *De anima* 5.4.2 (II, 350).
19. Suárez repeatedly speaks about *determinatio*, contrasting it with *efficacia*. See *De anima* 9.2.11–12 (III, 94–98).
20. For a clear distinction of these two types of causation, see Nadler 2011, 6–47.
21. Suárez unequivocally rejects occasionalism and defends a *concursus* theory according to which divine and natural causes work together. See *DM* 12.1–2, and the analysis in Perler and Rudolph 2000, 201–11.
22. *De anima* 9.2.12 (III, 96): "Est enim advertendum phantasiam et intellectum hominis radicari in una anima; et hinc est quod in suis operibus habent ordinem et consonantiam."
23. See *De anima* 3.1.5 (II, 60), and the analysis in Rozemond 2012.
24. *De anima* 3.1.7 (II, 62–64). For a detailed analysis of the distinction thesis, see Shields 2013, 367–68.
25. *DM* 18.5.3 (Opera 25, 668).
26. See *DM* 18.5.3 (Opera 25, 668), *De anima* 2.5.5 (I, 328), further references in Ludwig 1929, 23–34.
27. Note that the mere production of a species does not automatically lead to a thought about a given thing. It could very well be that several species are present so that the intellect needs to make a selection. That is why Suárez emphasizes that intellectual attention is required in addition to the production of species. See *DM* 18.5.2, and an analysis in Aho 2007, 199–203.

28. South 2002, 805. See also South 2001, 152–56.
29. *De anima* 9.8.18 (III, 234–36): "Item, nam intellectus noster est quasi medius inter intellectus angelicos et potentias sensitivas. Angelicus enim intellectus ex natura sua habet inditas species omnium rerum, quae quasi dimanant a virtute [propria] intellectus, quasi passiones ab essentia; potentia autem sensitiva, maxime exteriores [et] speciebus carent et illas ab extrinsecis obiectis recipiunt; intellectus autem noster et ex natura sua speciebus caret—in quo et a perfectione angeli declinat—, habet tamen convenientiam aliquam cum illo, scilicet quod statim ac anima nostra cognoscit per phantasiam rem aliquam, dimanat ab ipso intellectu species repreasentans rem illam. Unde haec efficientia potius est per modum cuiusdam emanationis speciei ab intellectu."
30. This is even one of his main conclusions. *De anima* 9.2.14 (III, 98): "Tertia conclusio sit: Intellectus agens ut sic nullam aliam actionem habet nisi productionem speciei intelligibilis, quamvis haec actio diversis nominibus explicetur."
31. South acknowledges this rejection but thinks that Suárez "is juggling two concerns and they mix rather uneasily" (South 2001, 153). But there is no need to see an inconsistency here. Spruit 1994–95, vol. 2, 304, already noted that Suárez cannot subscribe to innatism while defending an Aristotelian theory. In his pioneering study, Ludwig 1929, 56, introduced an important distinction that was unfortunately neglected by later commentators: Suárez claims that the human intellect has the general innate *capacity* to produce species, but he does not hold that particular *species* are innate.
32. *De anima* 9.2.17 (III, 104): "quia intellectus agens virtute sua efficit quamdam speciem spiritualem repraesentantem eamdem naturam quam phantasma repraesentat, non tamen materialiter, sicut phantasma repraesentat, sed quodam spirituali modo."
33. For Aquinas, this means that the intellect first abstracts a species and then somehow returns to the phantasm in order to grasp both particular and universal features. See *Summa Theologiae* I, q. 86, art. 1.
34. While often trying to follow in Aquinas's footsteps, he clearly sees this difference and distances himself from Aquinas. See *De anima* 9.3.3 (III, 108).
35. *De anima* 9.3.13 (III, 126–28).
36. *De anima* 9.3.22 (III, 142).
37. Suárez discusses it at length in *DM* 5–6. Referring to these texts, some commentators characterize his position as "moderate realism"; see, for instance, Heider 2014, 87–97.
38. *De anima* 9.4.6 (III, 160). He follows a tradition that started in the late thirteenth century and insisted that cognition of accessible features, which are nothing but qualities, does not provide cognition of a hidden substance, which is really distinct from all the features. Pasnau 2011, 115–34, aptly speaks about a doctrine of "the veiled subject."
39. See note 13.
40. One could even speak about encapsulated, domain-specific modules, for each faculty is an immanent cause that produces its own type of effect and that cannot act upon another faculty. Suárez can therefore be seen as someone who defends the thesis of "massive modularity." On this thesis, see Carruthers 2006, 1–12.
41. Of course, there were earlier departures, especially in authors (e.g., Ockham) who posited a plurality of substantial forms, and hence a plurality of souls in a human being. But the interesting point about Suárez is that he defends the traditional thesis that there is just one soul while turning it into a complex system. On the unity thesis, see Perler, forthcoming.

42. *De anima* 1.1.7–9 (I, 66–70). It would therefore be misleading to claim that efficient causation simply replaces formal causation; see Richardson 2015.
43. One should therefore start with Suárez, not with Descartes, when tracing the early modern history of efficient causation, as Schmaltz 2014, 139–40, rightly points out.
44. See, for instance, Nadler 2011, 29–47.
45. *Notae in Programma* (AT VIII-2, 359).
46. Earlier versions of this paper were presented at conferences in Berlin, Helsinki, and Lecce. I am grateful to the participants in all three places for helpful questions, and to Sebastian Bender, Ian Drummond, and Anna Tropia for detailed written comments.

Literature

Adriaenssen, Han Thomas. *Representation and Scepticism from Aquinas to Descartes*. Cambridge: Cambridge University Press, 2017.

Aho, Tuomo. "Suárez on Cognitive Intentions." In *Mind, Cognition and Representation. The Tradition of Commentaries on Aristotle's De anima*, edited by P. J. J. M. Bakker and J. M. M. H. Thijssen, 180–203. Aldershot: Ashgate, 2007.

Aquinas, Thomas. *Summa Theologiae*. Edited by Petrus Caramello. Rome and Turin: Marietti, 1952.

Carruthers, Peter. *The Architecture of the Mind. Massive Modularity and the Flexibility of Thought*. Oxford: Oxford University Press, 2006.

Cory Scarpelli, Therese. "Rethinking Abstractionism: Aquinas's Intellectual Light and Some Arabic Sources." *Journal of the History of Philosophy* 53 (2015): 607–46.

Côté, Antoine. "Introduction." In *Jacques de Viterbe: L'âme, l'intellect et la volonté*, 7–59. Paris: Vrin, 2010.

Descartes, René. "Notae in Programma." In *Oeuvres de Descartes*, edited by Charles Adam and Paul Tannery, vol. VIII–2. Paris: Vrin, 1987.

Eustachius a Sancto Paulo. *Summa philosophiae quadripartita*. Cambridge: Roger Daniels, 1649.

Heider, Daniel. *Universals in Second Scholasticism*. Amsterdam: John Benjamins Publishing, 2014.

King, Peter. "Scholasticism and the Philosophy of Mind: The Failure of Aristotelian Psychology." In *Scientific Failure*, edited by Tamara Horowitz and Allen Janis, 109–38. Lanham: Rowman & Littlefield, 1994.

Ludwig, Josef. *Das akausale Zusammenwirken (sympathia) der Seelenvermögen in der Erkenntnislehre des Suarez*. München: Karl Ludwig-Verlag, 1929.

Nadler, Steven. *Occasionalism. Causation Among the Cartesians*. Oxford: Oxford University Press, 2011.

Pasnau, Robert. *Theories of Cognition in the Later Middle Ages*. Cambridge: Cambridge University Press, 1997.

———. *Thomas Aquinas on Human Nature*. Cambridge: Cambridge University Press, 2002.

———. *Metaphysical Themes 1274–1671*. Oxford: Clarendon Press, 2011.

Perler, Dominik. *Theorien der Intentionalität im Mittelalter*. Frankfurt a. M.: Klostermann, 2002.

———. "Faculties in Medieval Philosophy." In *The Faculties: A History*, edited by Dominik Perler, 97–139. Oxford: Oxford University Press, 2015.

———. "Suárez on the Unity of Material Substances." *Vivarium*, forthcoming.

Perler, Dominik, and Ulrich Rudolph. *Occasionalismus. Theorien der Kausalität im arabisch-islamischen und europäischen Denken*. Göttingen: Vandenhoeck & Ruprecht, 2000.

Richardson, Kara. "Formal Causality: Giving Being by Constituting and Completing." In *Suárez on Aristotelian Causality*, edited by Jakob Leth Fink, 64–84. Leiden: Brill, 2015.

Rozemond, Marleen. "Unity in the Multiplicity of Suárez's Soul." In *The Philosophy of Francisco Suárez*, edited by Benjamin Hill and Henrik Lagerlund, 154–72. Oxford: Oxford University Press, 2012.

Schmaltz, Tad M. "Efficient Causation: From Suárez to Descartes." In *Efficient Causation: A History*, edited by Tad M. Schmaltz, 139–64. Oxford: Oxford University Press, 2014.

Schmid, Stephan. "Suárez on Efficient Causality." In *Suárez on Aristotelian Causality*, edited by Jakob Leth Fink, 84–121. Leiden: Brill, 2015.

Schumacher, Lydia. *Divine Illumination. The History and Future of Augustine's Theory of Knowledge*. Oxford: Wiley-Blackwell, 2011.

Shields, Christopher. "The Unity of the Soul in Francisco Suárez." In *Medieval Perspectives on Aristotle's De anima*, edited by Russell L. Friedman and Jean-Michel Counet, 359–82. Louvain: Peeters, 2013.

South, James. "Suárez on Imagination." *Vivarium* 39 (2001): 119–59.

———. "Singular and Universal in Suárez's Account of Cognition." *Review of Metaphysics* 55 (2002): 785–823.

Spruit, Leen. *Species Intelligibilis: From Perception to Knowledge*, 2 vols. Leiden: Brill, 1994–95.

Suárez, Francisco. *De anima*. Edited by Baltasar Alvarez, Opera Omnia 3. Paris: Vivès, 1856.

———. *Disputationes metaphysicae*. Edited by Carolus Berton, Opera Omnia 25–26. Paris: Vivès, 1861.

———. *De anima*. Edited by Salvador Castellote, 3 vols. Madrid: Sociedad de estudios y publicaciones and Fundación Xavier Zubiri, 1978–91.

2 Descartes on the Causal Structure of Cognition

Alison Simmons

1. Introduction

Descartes' treatment of the relationship between causation and cognition is shaped by his dualism, viz., his view that mind and body are distinct substances with fundamentally different natures, thought and extension. Many objects of cognition undergo a metaphysical transformation in Descartes' hands: bodies are turned into hunks of extension modified by size, shape, position, and motion. This geometrical conception of bodies will affect how they causally operate in the process of sensory cognition. Human cognizers also undergo a metaphysical transformation: we are unions of extended body and thinking mind.[1] While some human cognition is an affair of the thinking mind alone, viz., pure intellection and volition, most of it involves the causal interplay between mind and body, both our own bodies and the bodies around us. This latter category of cognition includes sensing, imagining, remembering, and feeling. For non-human animals, sensing, imagining, remembering, and feeling are *exclusively* a bodily affair: Cartesian animals respond appropriately to objects in the environment around them through purely physical and physiological causal processes.[2] That is largely true of us, too. But we human beings also have conscious sensory cognition of the world around us, and we, unlike the animals, can alter the course of our responses to the physical world through voluntary action. These things require a mind and its causal interaction with the world of bodies. The causal structure of human cognition, then, involves the complex causal interplay of world, human bodies, and human minds.

While Descartes explicitly and clearly overhauls the metaphysics of mind and body, he says little about the metaphysics of causation that allows these substances to interact with and change each other. What little he does say raises puzzles. As other chapters in this volume illustrate, those puzzles give rise to a number of interesting developments in the metaphysics of causation later in the seventeenth and eighteenth centuries.[3] Descartes himself, by contrast, devotes most of his attention to what we might call the physics of causation (in a broad sense of the

term that includes physiology and psycho-physiology). By and large, he aims to identify (or conjecture) the links on the causal chains in a way that is consistent with his dualistic metaphysics and to discover the laws that govern their patterns.

In his treatment of sensory cognition, however, Descartes does more than that. Sensory cognition is an especially complex form of cognition that causally links world, human body, and human mind. No form of cognition receives more attention from Descartes than sensory cognition, and he works on it over the entire course of his career. It is here that we find one of Descartes' lasting contributions to the study of the relation between causation and cognition: his re-conception of the very nature of sensory transmission, that is, the nature of the causal chain itself.

This chapter proceeds as follows. Section 2 explores the causal structure of Cartesian cognition in general, noting some of the (unresolved) metaphysical puzzles to which it gives rise. Sections 3 and 4 focus on the causal structure of sensory cognition in particular, treating our sensory cognition of proper sensibles (color, odor, flavor, etc.) and common sensibles or spatial properties (size, shape, distance) in turn.

2. The Causal Structure of Cognition at Large

I take "cognition" to refer to any modification of the Cartesian mind that involves the conscious representation of an object, or, in Cartesian terms, an "idea."[4] In its narrowest sense, cognition is a function of the Cartesian intellect, or faculty of perception, and it comes in a variety of flavors: purely intellectual perception (or understanding), imagination, memory, internal or bodily sensation, and sensory perception.[5] In a broader sense, it includes the Cartesian will, or faculty of volition; every volition, after all, includes a perception that gives it ideational content.[6] But because perception does the cognitive work in the volition, I'll restrict my use of "cognition" to the functions of the Cartesian intellect.[7] What, then, is the causal structure of Cartesian cognition?

In voluntary actions like reaching for an avocado, cognition is a cause. I'm not going to reach for the avocado unless I have thought of, say, making some guacamole. Now cognition alone won't get the guacamole made. I have to decide to make it, and this involves an act of will, that is, a volition. But since, as I just noted, volition always includes a perception (in this case, imagining myself making guacamole), it seems right to say that cognition is an important part of the causal chain that results in voluntary action.

Descartes is famously pressed to explain how this sort of mind-to-body causation works by Princess Elisabeth of Bohemia.[8] She is concerned about the metaphysics of the causal encounter: how can the mind get the body to move given that, being unextended, the mind cannot make contact with the body and so cannot push it around? Descartes' response

to Elisabeth's metaphysical query has satisfied virtually no one. He insists that the causal exchange somehow involves the mind–body union (which he hasn't explained), and that the best way to conceive the mind's operation on body is on analogy with the way we (mistakenly) conceive the operation of heaviness on a body.[9] Not very helpful. Descartes has more to say about what the causal interaction needs to accomplish: the mind needs to direct animal spirits flowing out of the brain's pineal gland into precisely those nerve tubules that will get the relevant muscles in the body moving (e.g., the ones that will reach my hand in the direction of the avocado). Thus, in the *Passions of the Soul*, he writes: "When we want to walk or move our body in some other way, this volition makes the gland drive the spirits to the muscles which serve to bring about this effect" (I.43, AT XI 361).[10] Descartes' exchange with Elisabeth about volitional action is, as we will see, typical of his treatment of the causal nexus in which cognition is embedded: he is short on metaphysical analysis of the causal transaction and long on physical detail about the process. In this case, he is focused on figuring out the links in the causal chain: volitions in the mind, the directional flow of animal spirits in the brain, and the influx of those spirits into the muscles.

Now let's turn things around. How does cognition come about in the mind? Among the mind's cognitions, intellectual cognition is unusual in that the mind itself is supposed to be its cause. The pure intellect's ideas are said to be innate, but that just means that the mind has the power to conjure them up on its own without the influence of anything external to it.[11] Here, then, mind is both cause and effect. The question arises just *how* the mind conjures up these ideas. Descartes resorts to metaphor: the mind "brings forth the idea . . . from the treasure house of [itself]" (Meditations 3, AT VII 67). It's hard to know how to cash out the metaphor. What is clear is that the process depends, as does voluntary bodily action, on volition. In the *Passions* he writes: "When [our soul] applies itself to consider something that is purely intelligible and not imaginable, for example, in considering its own nature, the perceptions that it has of these things *depend chiefly on the volition that makes it perceive them*" (I.20, AT XI 344, italics mine). Setting aside the interesting question where the volition itself comes from, it's not clear *how* volition brings about an intellectual perception. Does the volition bring into existence the purely intellectual idea of *x* as a distinct mode of mind? Or does the volition already contain the intellectual idea of *x*, and so simply make the mind conscious of its own content? After all, in order to make myself think about *x*, my volition must already contain the idea of *x*, for example, <I wish to think about God>. Descartes' curious suggestion in *Passions* I.19 that volition and perception are "really one and the same thing" (AT XI 344) might suggest the latter view: it's not that a passive intellectual perception follows an active volition as effect from cause; we simply have a voluntary perception. But that seems to make intellectual

perception far too easy. Why would I have to spend days meditating to coax the purely intellectual idea of God from my mind's "treasure house" if all I have to do is *will* to perceive him? Surely the content of the volition and the content of the intellectual perception are not identical. I suspect Descartes would reply that the volition has a vague or "obscure and confused" content, while the perception it gives causal rise to (ultimately) has determinate or "clear and distinct" content. That helps distinguish the two, but it remains a question just *how* a volition with vague content is supposed to bring about a perception with content more determinate than itself. On a little pressing, it looks like the metaphysics of mind-to-mind causation is hardly more worked out by Descartes than that of mind-to-body causation.

Voluntary memory (e.g., trying to remember what you had for dinner last night), voluntary imagination (e.g., thinking about what to make for dinner tonight), and voluntary attention (e.g., directing your attention to the avocados on the counter that could be part of dinner tonight) also have their causal origin in the mind, viz., in a volition to remember *x*, imagine *y*, or attend to *z*. Unlike voluntary intellectual cognition, however, the causal path for these cognitions is not direct but routed through the brain. Volition in the mind produces a brain event in the body, which in turn produces a cognition in the mind. The first step of the causal process raises the same explanatory questions that voluntary bodily action raises: how does the mind bring about a change in the brain? As in the exchange with Elisabeth, so too here Descartes is clear about what the mind has to accomplish physically but short on metaphysical analysis: "when we want to imagine something we have never seen, this volition [of the mind] has the power to make the [pineal] gland move in the way required for driving the [animal] spirits toward the pores of the brain whose opening enable the thing to be represented" and "when we want to fix our attention for some time on some particular object, this volition keeps the gland leaning in one particular direction during that time" (*Passions* I.42–43, AT XI 360–61). How does volition do these things? After all, the volition that sets things in motion seems to have nothing to do with the motions in the brain that it brings about: the volition is not <let the pineal gland or animal spirits move thus!> but something like <let me imagine what an avocado and chocolate salsa might taste like>. Descartes seems more interested in nailing down the psycho-physiological details between the mind's volitions and the body's brain events than he is in sorting out the metaphysics of the transaction. Once the brain event occurs, the actual production of the mental image (the memory, imagining, or attended sensory perception) is a matter of brain-to-mind causation, to which I turn next and for the remainder of the chapter.

The human mind's involuntary cognitions (sensory perceptions, involuntary memories, involuntary imaginings such as hallucinations and dreams, and passions) have their causal origin in some body, at least

when God is not playing tricks on us and causing them himself. In sensory perception, an external body excites motions in a sense organ, which excites motions in the relevant nerves, which open the ends of tubules housing nerves on the inner surface of the brain, which draw animal spirits flowing out of the pineal gland, which action leaves an impression on the pineal gland, which gives rise to a sensory idea in the mind.[12] At this point, the mind makes a variety of rapid and habitual judgments that effectively flesh out the sensory cognition to produce the experience we are aware of.[13] Involuntary memories and imaginings have shorter causal histories, cutting out the external object, sense organs, and nerves. (Descartes suggests that the lack of nerve involvement explains why they are typically indeterminate and "shadowy" [*Passions* I.24 and 26, AT XI 345 and 348].) Memories begin their lives as traces etched into the inner surface of the brain by previous sensory encounters.[14] When triggered by, say, the motions of nearby tubules, they draw into them animal spirits flowing from the pineal gland, which leaves an impression in the pineal gland, which gives rise to an idea of the remembered object. (Descartes eventually assigns a special role to the pure intellect in memory: it must *recognize* the original idea *as novel* and the repeated idea *as a repeat*; that accounts for our experience of it *as a remembering*.[15]) Involuntary imaginings (including dreams and hallucinations) have their causal source in the fortuitous course of animal spirits themselves: they "arise simply from the fact that the spirits, being agitated in various different ways and coming upon the traces of various impressions that have preceded them in the brain, make their way by chance through certain pores rather than others" (*Passions* I.21, AT XI 344–45).[16] Finally, the passions get their start in bodily organs such as the heart, spleen, and liver that affect the blood and so the flow of animal spirits into the pineal gland, which, in turn, agitate the pineal gland as they leave it in ways that are instituted by nature to produce passions in the mind.[17]

I rehearse these details to illustrate two things. First, the causal chains involved in cognition traverse the metaphysical landscape of Descartes' mind–body dualism, with each link properly placed in one territory or the other.[18] Second, while the transitions from link to link raise difficult metaphysical questions, Descartes appears to be largely uninterested in them. He's focused on the links themselves and the laws or patterns that exist among them. Still, as I will illustrate in the next two sections, in his treatment of sensory cognition Descartes is not entirely uninterested in metaphysics: he has a good deal to say about the nature of the causal chain itself that marks a significant change from his dominant predecessors.

3. Sensory Cognition: Replacing the Species Theory

An explicit aim of Descartes' account of sensory processing is to replace the Aristotelian species theory.[19] According to the species theory, sensory

cognition is the causal result of an object's producing "species" or similitudes of itself in the sentient organs of a perceiver.[20] To some extent, Descartes' rejection of species theory is part of his general campaign to rid physics of the Aristotelian schoolmen's "strange objects" that are "harder to understand than the things they supposed to explain" (e.g., substantial forms, prime matter, real qualities) and to replace them with maximally intelligible (if insensibly small) bits of matter in motion, consistent with his metaphysics of body (*Principles* IV.201, AT VIII-A 324–25).[21] But it also marks a critical break with the explanatory concept that lies at the very heart of the species theory of cognition: resemblance.

The species theory turns on the basic Aristotelian principle that sensory cognition, like all cognition, is a matter of assimilation: in sensing an object, the perceiver becomes *like* the object.[22] Resemblance plays two explanatory roles in the theory. First, it explains the *intentional result* of the process: I have a visual experience *of blue* rather than *red* when I look at a blueberry because I, or at least my seeing eyes, become like the blueberry's color. Resemblance also explains the *causal process* that gives rise to the cognition: the blueberry assimilates my seeing eyes to itself by replicating itself as species in the illuminated air and in my eyes. More accurately, the blueberry's proper sensibles (its color, flavor, odor, sound, etc.) produce species, and thereby assimilate the air and eyes to itself. Despite Descartes' characterization of them as "images flitting through the air" (*Dioptrics* I, AT VI 85), most species theorists suggest that species are not spatially articulated; they are point-like. In vision, the color at each point on the surface of the blueberry radiates species along rays of light in all directions. The result at the surface of the perceiver's eye is chaos: it is flooded with light altered by species from every point on the facing surface of the blueberry (not to mention the facing surfaces of every other object in the vicinity). The common sensibles, or spatial qualities of objects, must be recovered by sorting the color species that arrive in the light at the eye. On one influential view that traces itself back to Alhazen (965–1039 CE), only light rays that strike the curved eye perpendicularly are efficacious, so that, once in the eye, they form a spatially articulated image of the object, each color in its place; this image informs the sentient organ.[23] Note that proper sensibles are the primary physical agents of change in the causal process; they produce qualitative changes in the medium and in the perceiver. Geometrical optics and anatomy explain how, in vision, the common sensibles are recovered in the eye from the qualitatively altered light.

There is, of course, a twist to all this: the proper sensibles do not unequivocally assimilate the medium and the sense organ; the illuminated air and my eye, for example, don't turn blue in the sense that they *look* blue. And in cases where the medium and organ *do* unequivocally become like the object, as when a fire warms the air and my hand, that's not what accounts for my *sensing* the warmth. Species are theoretical entities that

perform a delicate balancing act: their presence in the medium and sense organ must make them become *like* the proper sensibles of the object, but without actually instantiating those qualities in them or, more accurately, without instantiating those qualities *in the way they are instantiated in the object*. To perform this feat, they are assigned a special mode of being, viz., "intentional being." Much of the debate among species theorists concerns the proper understanding of this strange form of being.

Interestingly, Descartes has no complaint about the strange intentional being of species. Indeed, the "objective being" he attributes to ideas in the *Meditations* is arguably a vestige of it.[24] What Descartes objects to is the claim that species *resemble* the objects that produce them and that the causal process is fundamentally a process of assimilation:

> since the philosophers' conception of these images [i.e., species] is confined to the requirement that they should resemble the objects they represent, they cannot possibly show us how the images can be formed by the objects, or how they can be received by the external sense organs and transmitted by the nerves to the brain.
>
> (*Dioptrics* 4, AT VI 112)[25]

It is not only the "philosophers" with their fancy species theory who assume the process of sensory transmission is one of assimilation. Descartes seems to think this is an intuitive idea. Rehearsing his pre-meditative beliefs in the *Meditations*, he notes: "nothing is more obvious than for me to judge that the [object in the world] transmits to me its own likeness rather than something else" (AT VII 38). But far from explaining how sensory cognition happens, Descartes protests, resemblance makes the causal process unintelligible. Descartes will therefore reconceive the entire sensory process without appeal to resemblance.[26]

In the physical process running from object to brain, Descartes replaces resembling species with motion: "We are not permitted to judge that anything reaches the brain other than local motions of the nerves" (*Principles* IV.198, AT VIII-A 321).[27] As I mentioned at the start, Descartes conceives the sensory objects themselves entirely in terms of extension; their properties are limited to size, shape, position, and motion. Proper sensibles like color and odor, insofar as they inhere in those objects, are cast as configurations of variously sized and shaped microscopic particles that are capable of setting up local motions in the particles of the medium, sense organs, nerves, and brain.[28] (To mark this geometricized conception of the proper sensibles, I'll refer to them, insofar as they inhere in objects, with scare quotes as "color" and "odor.") Descartes' re-conception of the proper sensibles in itself doesn't tell against resemblance playing a role in the causal sensory process. He could have insisted that the proper sensibles set up motions or patterns in the medium, sense organs, and nerves that in some way resemble what they are like in the

object. But he does not. In the case of vision, he proposes that patches of "color" on an object put a distinctive rotational spin on the particles of incident light that they reflects.[29] Once the rotating particles of light pass through the pupil and "crystalline humor" (i.e., the lens) of the eye and strike the retina, they jiggle the front end of an optic nerve fiber, which simultaneously causes a corresponding jiggle at the back end of the nerve fiber at the inner surface of the brain.[30] The fibers jiggling at the internal surface of the brain in turn open the tubules that house them, and do so with a wiggle that corresponds to but does not resemble in any way the "color" in the object that kicked off the process. Next, the animal spirits get in on the action: they flow out of pores in the pineal gland toward the wiggling tubules in a manner that differs according to the wiggle of the tubule that draws it.[31] The dance of the animal spirits is the last physical link in the causal chain. The physical causal process thus involves a series of different motions in the light, in the optic nerve fibers, in the tubules, and in the flow of animal spirits. Nowhere is resemblance to be found. Causation in this purely physical part of the sensory process is not a matter of assimilating one thing to another; it is a matter of locally moving one thing after another.

Now this account of the physical causal process as a chain of local motions raises some vexing metaphysical questions. How, exactly, does one body move another? Is there a motive force intrinsic to body or is it extrinsic to it? Does the motion of the one body leap into the next? Does the motion of one body serve as the occasion for God to move the next body, or for the next body to move itself? Do the laws of motion do anything or do they just describe what the bodies themselves do? These questions have occupied a good many philosophers in Descartes' wake.[32] Descartes himself seems strangely oblivious to them: "we understand supremely well how the different size, shape, and motion of the particles of one body excite various local motions in another body" (*Principles* IV.198, AT VIII-A 322). Do we? I'm not so sure. But once again, Descartes is focused on identifying the links in the causal chain: rotations of light particles, jiggles of nerves, wiggles of tubules, and dances of animal spirits. And, as we see here, he is concerned to keep resemblance out of the picture. Whatever the metaphysics of the body-to-body exchange amounts to, it does not require cause and effect to resemble each other.

Resemblance is removed from the next link in the sensory causal chain as well, viz., the psycho-physiology of brain-to-mind interaction: "there is no need for there to be any resemblance between the ideas that the soul conceives and the motions that cause them" (*Dioptrics* 6, AT VI 131).[33] As Marleen Rozemond aptly notes, Descartes is not gesturing here to the general heterogeneity between immaterial thinking substance and material extended substance; that is, he isn't simply saying that it is unnecessary for local motions in the brain to produce local motions

in the mind (an impossibility). He is talking about the more particular difference between, say, color (as we sensorily conceive it) and motion, or pain (as we sensorily conceive it) and motion; that is, he's saying it is unnecessary for local motions to produce *ideas* of those local motions.[34] Thus: "it is the nature of our mind that it can be impelled to have certain thoughts simply from certain motions happening in the body, *without those thoughts referring to any images of those motions*" (*Principles* IV.197, AT VIII-A 320, italics mine).

Descartes' substitute for resemblance at this psycho-physiological stage of the causal process is natural signification:

> You know well that (spoken or written) words, having no resemblance with the things that they signify, nevertheless make us conceive them . . . Now if words, which signify nothing except by the institution of human beings, suffice to make us conceive things with which they have no resemblance, why couldn't Nature also have established a certain sign that would make us have the sensation of light, even if the sign had nothing in it similar to this sensation? . . . Our mind represents to us the idea of light each time the action that signifies it touches our eye.
>
> (*World* 1, AT XI 4)[35]

Local motions in the brain are natural signs in the sense that they signal the mind to sense something. Thus, for example, the force with which light impacts the retina and brain signals the mind to sense (weaker or stronger) light and the manner in which the light impacts the retina and brain signals the mind to sense (this or that) color.[36] Gary Hatfield notes that the natural-sign relation at work here has three critical features: (1) the sign and the idea[37] it gives rise to regularly covary, (2) the covariation is established by Nature or God, and (3) because the signs are correlated with ideas, the sign refers indirectly to whatever the idea represents; that is, it gets its semantic value from the idea to which it gives rise.[38] I'll add a fourth feature: (4) the pairings between sign and idea are not arbitrary. Although they may *seem* arbitrary precisely because of the lack of resemblance between them, Descartes insists that there is a reason behind the pairings: they are established with an eye toward the human being's self-preservation. What is more, they could not have been otherwise than they in fact are, if they are to serve the end of self-preservation. Nature (God), he tells us, pairs (types of) motions in the brain with just one (type of) sensation, viz., that sensation which "*of all possible sensations*, is most especially and most frequently conducive to the preservation of the healthy person . . . *nothing else* would have been so conducive to the continued well-being of the body."[39] Different sensations prompt different kinds of action by their intrinsic qualitative natures: pain prompts

withdrawal, and so is paired with motions in the brain that are caused by damaged nerves; bitter taste sensations prompt spitting things out, and so are paired with motions in the brain that are caused by foods that are not readily digestible; green sensations (Descartes suggests, and the spa industry seems to agree) are the most pleasant and refreshing of color sensations, and so are paired with light of moderate action that will cause no harm to the eye.[40] The psycho-physiological laws of brain-to-mind interaction are not the result of a blind fiat; there is a biofunctional necessity to them.[41]

But what sort of causal relation is signaling? It's fine to say that Nature has established a law-like natural-sign relation between brain motions and sensations that is uniquely conducive to our self-preservation, but how does it work metaphysically? Is signaling a *genuinely causal* relation? If so, is the corporeal sign a transeunt efficient cause that itself modifies the mind? Is it an *occasional* cause, such that either God or the mind itself does the work of conjuring the sensation in the mind when the sign appears? Or are signs an entirely different kind of cause? On one line of interpretation, the causal relation is semantic and hermeneutic: the mind "reads" the sign in the brain and "interprets" or "decodes" it by a kind of innate dictionary.[42] The texts are spectacularly unclear on the matter. Descartes employs a vast array of causal and quasi-causal expressions to describe the event, and these expressions sometimes vary widely within a single text or even a single paragraph. In a matter of a few sentences in the *Treatise*, for example, he tells us that motions in the brain "*give occasion* to the soul to sense" (*pourront donner occasion à l'ame de sentir*) motion, size, distance, color, sound, odor and other such qualities; that they "*make* the soul sense" (*fair sentir*) tickling, pain, hunger, thirst, joy, and more; and that they "cause" (*causer*) the sensations of white and of pain (*Treatise*, AT XI 144). Shortly thereafter he says instead that the soul "will consider immediately" (*considerera immediatement*) the images traced in the pineal gland by those motions (*Treatise*, AT XI 176–77). This range of expressions can be found in his writing from early to late with no consistent change over time.[43]

Commentators have valiantly attempted to reconstruct a coherent metaphysics of body-to-mind causation from the texts.[44] My own view (which will come as no surprise by now) is that the lack of care Descartes took in choosing how to describe it (or perhaps the care he took to describe it in so many different ways?) reflects the fact that he simply did not have a worked-out view of the metaphysics of the causal exchange. As with the purely physical part of the causal chain, Descartes is interested instead in identifying the links on the causal chain (consistent with his metaphysics) and in ruling out the need for any resemblance among them. He thereby transforms what had been conceived as a causal process of assimilation into a process of transduction, in which the links on the chain take very different forms.

4. What About Spatial Perception?

I might be accused at this point of telling only half the story. What about our sensory cognition of the common sensibles, that is, the macroscopic spatial qualities of objects? Surely the causal story here will involve resemblance. After all, the common sensibles are real features of the Cartesian physical world and our sensory cognition of them does resemble (or accurately represent) them at least some of the time. What is more, there is the retinal image! Descartes is working in the wake of Kepler, and he is decidedly impressed by the fact that objects "imprint quite perfect images of themselves on the back of our eyes" (*Dioptrics* 5, AT VI 114).[45] One might naturally think that these images are causally operative in our sensory cognition of the common sensibles, that is, in spatial perception, so that resemblance is important to sensory transmission after all.

All that is true. But the production of an image in the eye or brain is not the production of a visual experience. Descartes' most extensive treatment of spatial perception is in the *Dioptrics* and *Treatise*, and in these texts we find Descartes at pains to insist that *even in spatial perception* images in the eye and brain *do not causally explain why we see what we do*. Or at least, to the extent that they do, "it is necessary to conceive the nature of these images entirely differently than [the philosophers] do" (*Dioptrics* 4, AT VI 112). What might that mean?

The first thing to note, before turning to the images themselves, is that some aspects of spatial perception are produced by motions in the brain that have nothing to do with retinal or brain images at all. Both the *Dioptrics* and the *Treatise* give pride of place in their discussion to the perception of position (*la situation*), that is, the direction of an object or part of an object in relation to one's own body (e.g., up, down, right, left). Perceiving position (direction), he states unequivocally, "does not depend on any image" (*Dioptrics* 6, AT VI 134). Indeed, given that the retinal image is inverted, it would seem that I see an object's position (direction) *despite* the image it produces on the retina.[46] Perceiving position (direction) depends instead on muscular information about where we are looking: I look down to see someone's feet and up to see her head (assuming I'm not doing yoga). Descartes proposes that the position of the eye muscles (the direction in which they are turned) is registered by the position of "the tiny parts of the brain where the nerves [embedded in the muscles of the eye] originate," which in turn is "instituted by Nature" to give us an experience of direction. And thus "when our eye or head is turned toward some side, our soul is informed of this by the change that the nerves embedded in the muscles that serve those movement cause in our brain" (*Dioptrics* 6, AT VI 134–35).[47] I'm not focused, of course, on my looking eyes; I'm focused on the object. But it looks to be in the direction I'm looking. As with the proper sensibles, so too here, it seems, motions in the brain signal the mind to sense

position (direction) according to a psycho-physiological regularity set up by Nature (God).

Perceiving distance also depends a good deal on information about where we are looking rather than retinal and brain images, according to Descartes. For one thing, he tells us, the eye "changes its shape" (we'd say it "accommodates") as we focus on objects at different distances. This information is passed on to motions in the brain that signal the mind to sense distance: "the vision of distance depends no more than position on any images transmitted from object, but primarily on the shape of the body of the eye," which is "instituted by Nature to make our soul perceive this distance" (*Dioptrics* 6, AT VI 137).[48]

The convergence of the eyes on an object near or far, he further tells us, changes the "lean" of the pineal gland, and this motion in the brain also signals the mind to sense distance: if the gland is relatively vertical, it signals the mind to sense a great distance; if it leans forward toward the inner surface of the brain, the mind is signaled to sense shorter distances.[49] The convergence of the eyes also plays a role in Descartes' notorious "natural geometry" account of distance perception.[50] There is much debate whether the natural geometry involves kind of angle-side-angle reasoning based on some kind of (implausible) awareness or knowledge of the distance between the eyes and their angles of convergence on the object, or whether the "geometry" is encoded in the purely physical process of the eyes' convergence and accommodation, which, as I noted earlier, are natural signs that give rise to the experience of distance.[51] Although my interpretive sympathies run with the more purely psycho-physiological readings of most passages, either way it's clear that the retinal image is not a critical causal factor here.

So far, the goings on in the brain that signal distance perception have nothing to do with images. Descartes does think that the retinal and brain images provides *some* cue to distance. Objects that lie beyond and before the distance on which we are focused will yield a blurry or confused retinal image (because only light rays coming from points on the focal plane will re-converge, point for point, on the retina); and the light originating from a greater distance will have a weaker effect on the retina than light originating nearer; so together they can tell us whether an object is nearer or farther than the focal plane.[52] But note that what informs us about distance here is simply the image's blur and strength, and emphatically not any resemblance it bears to the object. It is left to the mind to sort the distance of the object out from those cues. Qua image, the retinal image isn't doing much.

What about shape and size perception? Descartes suggests in the *Dioptrics* that even these are caused not by any spatial features of the retinal (or any other) image but rather "are included in the manner in which we see the distance and position of their parts" (*Dioptrics* 6, AT VI 140).[53] He seems to have in mind that I perceive the shape of an object by perceiving the position and distance of each of its parts as I move my eyes to

scan it "and not by the resemblance of the picture in our eyes," which, after all, depicts only a two-dimensional projection of the shape, much of it blurry or confused (*Dioptrics* 6, AT VI 140–41).[54] We do seem to perceive size by means of the retinal image, but, he rightly insists, "not absolutely by the size of the image" (AT VI 140). After all, those images are very small and they change dramatically as the object moves closer and farther. We perceive the constant size of the object through information conveyed to the mind from the retinal image together with our perception of the object's distance. To the extent that shape and size perception are a function of position (direction) and distance perception, they too fall under the natural-sign account of sensory transmission rather than any resemblance account.

What, then, about all those impressive images? Are they causally inert? Recall that Descartes tells us "it is necessary to conceive the nature of these images entirely differently than [the philosophers] do" (*Dioptrics* 4, AT VI 112). What does that mean? For the most part, it means that to understand their causal efficacy in sensory transmission we must attend to features *other than* their resemblance to the object. The passage from *Dioptrics* 4 continues:

> [We must] note that the question to answer is how [the images that form in our brain] can enable the soul to sense all the different qualities of the objects to which they correspond, *and not at all how they resemble those objects*.
>
> (AT VI 113, italics mine)

How so? First, Descartes is eager to point out the many *failures* of resemblance between the sensory object and the images it produces in the eye and brain: the images are not the same *size* as the object; they are *upside-down* and *inverted* relative to the object; they are *two-dimensional* rather than three-dimensional; they are *perspectivally distorted*; and only the focal point of the retinal image is distinct, the rest *confused*. Thus, even if there is *some* resemblance between these images and (some of) the object's macroscopic spatial qualities, it is far from *complete* resemblance. Descartes goes so far as to insist that the *lack* of resemblance is important to their doing their job, noting in *Dioptrics* 4 that in the practice of engraving "the perfection of an image often depends on its not resembling its object as much as it might" (AT VI 113).

Second, later in the *Dioptrics* he tells us that it is not the spatially articulated images themselves that are causally efficacious in the sensory process, but the motions of the nerves, tubules, and animal spirits that constitute them. Thus:

> Now, although this picture, in passing thus to the inside of our head, always retains some resemblance of the objects from which it

> proceeds, *one must not think*, as I've already made you understand, *that it is by means of this resemblance that the picture makes us sense the objects*, as if there were yet other eyes in our brain with which we could perceive; but rather, that *it is the motions by which it is composed, which, acting immediately on our soul in as much as it is united to our body, are instituted by Nature to make it have such sensations*.
>
> (*Dioptrics* 6, AT VI 130, italics mine)

It is worth pausing over this claim. Each nerve and tubule amounts to a pixel of an image on the retina and inner surface of the brain; and each pore from which the animal spirits flow out of the pineal gland amounts to a pixel of the pineal image. The local motions of each pixel signals a sensation in the mind. That, I suggest, is what Descartes has in mind when he says that we must conceive the nature of these images "entirely differently than [the philosophers] do." Casually speaking, the images are spatially articulated collections of moving pixels; more to the point, they are spatially articulated collections of natural signs that give rise to color sensations in the mind.[55]

Note also that what is causally efficacious in the image is "color." Each pixel of the retinal, brain, and pineal image is, in effect, a "color" pixel; that is, it corresponds to a point of "color" on the object and signals a color sensation in the mind.[56] True, "color" in the object amounts to the arrangement of microscopic particles of matter, but those, and not the macroscopic spatial qualities of the object, are what casually affect or "color" the light by putting a rotational spin on its particles. And this "colored" light is what sets up the causally efficacious motions in the eye, nerves, and brain:

> Light being nothing but a movement or an action which tends to cause some movement, those of its rays that come from point V [on the object] toward point R [on the retina] have the power of moving the entire retinal nerve fiber R7, and so the point of the brain [at the other end of the fiber]; and those rays that come from a different point X [on the object] toward point S, [on the retina] [have the power] of moving the entire retinal nerve S8, and even of moving it in a way other than that by which R7 is moved, *because the objects X and V are of two different colors*.
>
> (*Dioptrics* 5, AT VI 128–29, italics mine)

These different "color" motions in the brain signal different color sensations in the mind:

> it is easy to understand that tubule 2 [at the inner surface of the brain], for example, will be differently opened by the action that I said causes a sensation of the color red . . . than by that which I said

> causes the sensation of the color white . . . and the spirits that leave from point a [on the pineal gland] will tend differently toward that tube according as it is opened differently.
>
> (*Treatise*, AT XI 176)[57]

The retinal and brain images, then, are spatially articulated collections of "color" points, and the "color" points do the work of causing sensations in the mind.

One final point about these pixelated images is worth mentioning: they are formed over time. At any given moment, "the soul will only ever see very distinctly a single point on the object" (*Treatise* AT XI 157). The rest is a blur. The visual system, as Descartes understands it, can only precisely re-converge the rays coming from one "color" point of the object at a time, viz., the one at the eye's focal point. Scanning the object with rapid eye movements resolves the image, but it must do so point by point:

> the muscles turning the eye very quickly in every direction serve to remedy this defect because in no time at all they can apply the eye successively to all points of the object and permit the soul to see all points distinctly *one after the other*.
>
> (*Treatise* AT XI 157–58, italics mine)

I point this out because, on Descartes' most complete account of it, spatial perception does not involve passively receiving an intact imprint of an object on the retina all at once, as wax receiving the imprint of a seal.[58] Rather, we see the spatial layout of an object only by stitching together the "color" points of an object over time through active eye movements.

Even the sensory cognition of common sensibles, then, is causally divested of resemblance by Descartes. Partial resemblance is *present* in the process in the form of two-dimensional, perspectival images on the retina, inner surface of the brain, and pineal gland. But what does the causal work of producing our sensory ideas of position, distance, size, and shape are either motions in the brain that have little to do with these images or the motions of animal spirits and fibers that collectively trace out those images. The images themselves are more *effects* of the process than *cause*. And that is why they are to be re-conceived as spatially articulated patterns of causally efficacious "colors" or motions or natural signs that gives rise to (phenomenally spatially articulated patterns of) sensation in the mind. Sensory transmission, even in the case of spatial perception, is fundamentally a process not of assimilation but of transduction.

5. Conclusion

I said at the opening that Descartes' dualistic metaphysics shapes his treatment of the relationship between causation and cognition. On the

one hand, it generates puzzles concerning the underlying metaphysics of body-to-body, body-to-mind, mind-to-body, and mind-to-mind causation that Descartes bequeaths to his successors. On the other hand, it provides the metaphysical framework within which he constructs an innovative account of sensory transmission. First, the links on the causal chain all fall squarely on one side of the dualism or the other; they are modes of body or modes of mind.[59] Second, he argues that resemblance is not a causally explanatory concept and removes it from his causal explanation: a physical motion on one link of the causal chain need not resemble the next one; and those motions need not resemble the sensation to which they give rise in the mind. Any resembling images produced along the way (in vision) are re-conceived as collections of causally efficacious motions that serve as natural signs for sensations. The causal chain of assimilation is thus transformed into a chain of transduction; sameness of form gives way to change of form. And finally, Descartes makes it clear that the job of the natural philosopher is to inquire simply into the laws that govern transduction.

In all this, Descartes puts us on a path we are still walking today. We may insist we are not metaphysical dualists, but we operate (conceptually or methodologically) as dualists in mapping the relations among world, brain, and mind. We still aim primarily to discover the psycho-physical and psycho-physiological laws that govern sensory cognition. And while the physical and brain sciences have come a long way from rotating particles of light and animal spirits flowing out of the pineal gland, we still think of sensory transmission as a process of causal transduction; that is, the transformation of physical stimuli into neural signals, and neural signals into psychological experiences. Finally, of course, we have yet to solve to the metaphysical mind–body problem.

Notes

1. An important component of Descartes' dualistic reframing of the human being is that the soul is no longer the principle of life; it is merely the principle of thought. Life is now a mechanical function of the body. For discussion see Bitbol-Hespériès 1990; Hatfield 2012; Rozemond 2006.
2. For discussion see Hatfield 2007, 2008.
3. I have in mind the occasionalisms of Cordemoy, Malebranche, and Cavendish; the mixed efficient and occasional causation theories of La Forge and Berkeley; the parallelism of Spinoza; the pre-established harmony of Leibniz; and the regularity theory of causation made famous by Hume.
4. See *Meditations on First Philosophy* (hereafter *Meditations*) 3, AT VII 37. (Note: AT = Descartes 1996; cited by volume and page.)
5. See *Principles of Philosophy* (hereafter *Principles*) I.32, AT VIII-A 17.
6. Descartes is most explicit about this in the case of the will's judging (see *Meditations* 4, AT VIII 56; *Principles* I. 34, AT VIII-A 18; and *Comments on a Certain Broadsheet* [hereafter *Comments*], AT VIII-B 363). It is, however, implied by his suggestion in Meditation 3 that other volitions are, like

judgments, among the mind's thoughts that include an idea plus some "additional form" (AT VII 37).

7. Passions or emotions are hard to place. Descartes sometimes put them clearly on the side of the intellect as among those obscure and confused perceptions that arise from the mind's union with body (*Treatise on Man* [hereafter *Treatise*], AT XI 176; *Principles* IV.190, AT VIII-A 316–17; and *Passions of the Soul* [hereafter *Passions*] I.28, AT XI 349–50). Other times he seems to align them with the mind's volitions, perhaps because of their special role in moving the will or perhaps because they are conceived as "additional forms" that attend conscious representations (see *Meditations* 3, AT VII 37 and *Principles* I.32, AT VIII-A 17). For a few attempts to sort out the ontology of the passions, see Brown 2006; Greenberg 2007; Hoffman 1990.
8. See Elisabeth's letter to Descartes, 6/16 May 1643, AT III 661.
9. See Descartes' letter to Elisabeth, 21 May 1643, AT III 664–68. We find much the same in his reply to Arnauld's similar question a few years later (letter to Arnauld, 29 July 1648, AT V 221–22).
10. In the *Treatise*, he goes to great lengths to conjecture the brain, nerve, and muscle physiology that makes all this possible (see AT XI 181–85).
11. See *Meditations* 3, AT VII 38; *Third Replies*, AT VII 189; *Comments* AT VIII-B 361 and 366; and the letter to Voetius, May 1643, AT VIII-B 166.
12. Descartes gives a version of this causal chain from his earliest works through his very latest works. See *World* 2, AT XI 9; *Treatise*, AT XI 153, 156, and 190; *Dioptrics* 4–6, AT VI 109–41; *Principles* IV.189, AT VIII-A 316; *Passions* I.12–13, AT XI 336–39; and the letter to the Marquess of Newcastle, October 1645, AT IV 326–27.
13. There is a good deal of debate in the literature concerning how much of our sensory cognition is the result of sheer psycho-physiology and how much is a matter of further psychological processing, either in the form of associations or reasoning. The debate centers on Descartes' discussion of the "three grades of sense" in the *Sixth Replies*, which appears to suggest that while sensing proper sensibles (color, odor, flavor, etc.) is the result of sheer psycho-physiology, our sensory cognition of common sensibles or spatial qualities (size, shape, distance, direction) is a matter of psychological processing or judgment. This debate is beyond the scope of this chapter, but my own view is that a good deal of spatial perception is accomplished by sheer psycho-physiology. For a sampling of papers on the topic, see Hatfield 2015; MacKenzie 1990; Maull 1978; Ott 2017; Simmons 2003; Wilson 1993.
14. See *Treatise* AT XI 177–178 and 184; letter to Meyssonnier, 29 January 1640, AT III 20; letter to [Mesland], 2 May 1644, AT IV 114; and *Passions* I.42, AT XI 360.
15. See Descartes' letter for Arnauld, 29 July 1648, AT V 220 and *Passions* I.42, AT XI 360. For discussion see Lähteenmäki 2007.
16. See also *Passions* I.26, AT XI 348.
17. See *Passions* I.36–37, AT XI 346–47; *Passions* I.51, AT XI 371; and *Passions* II.101–6, AT XI 403–7. Wonder is the exception, not involving the blood-related bodily organs (see *Passions* I.71, AT XI 381).
18. There is an important caveat to this claim. Descartes persistently insists that while these involuntary perceptions are modes of mind, they are modes of mind that depend on the union of mind and body. While some commentators read this simply to mean that they depend causally on the body (which need not complicate the dualism), others (including myself) read it to mean that there can be no causal action of body on mind without some metaphysical magic happening between the substances that makes the causal exchange

possible. Descartes is frustratingly short on metaphysical details. For a sampling of classic and recent views about mind–body union and its relation to mind–body interaction, see Broughton and Mattern 1978; Koivuniemi and Curley 2015; Loeb 2005; Schmaltz 2008; Simmons 2017; Radner 1971; Rozemond 1998.

19. See *Dioptrics* 1, AT VI 85; *Dioptrics* 2, AT VI 112; *Sixth Replies*, AT VII 437; *Principles* IV.198, VIII-A 322; and *Principles* IV.200, AT VIII-A 324–25.
20. There are many different versions of the species theory, but Descartes shows no interest in the differences or, for that matter, in depicting the theory sympathetically. For the most part, I will confine myself to claims that are general enough that most species theorists would accept them. For an introduction to the theory, see King 2010; Pasnau 1997; Perler 2015; Simmons 1994.
21. See also *World* 1, AT XI 7–8; *World* 5, AT XI 25–27; and *Principles* IV.187, AT VIII-A 314–15. For extended treatments of Descartes' revisionist project in physics, see Des Chene 1996; Garber 1992; Hattab 2009.
22. The principle has its source in Aristotle's suggestion in the *De Anima* that cognition involves the reception of form without its matter.
23. For an extensive account of the theory and its development, see Lindberg 1976. For a more compact version, see Hatfield 2015.
24. See *Meditations* 3, AT VII 40–42. Descartes' objective being plays one of the roles of species, viz., it accounts for the intentional or representational content of a thought. While it places some constraints on the cause of the thought (the cause must have at least as much "formal reality" as the thought as "objective reality" [AT VII 41]), there is no evidence that it plays any causal role in the process of coming to have that thought.
25. See also *Principles* IV.198, AT VIII-A 322.
26. There is some question whether the aforementioned objective being of Cartesian ideas preserves the notion of resemblance insofar as the objective being of my idea of, say, the blueberry, just is the blueberry existing in my mind "in the way that objects exist in the intellect" (*First Replies*, AT VII 102). There is a related question whether the causal principle that Descartes articulates in Meditation 3, viz., that the cause of an idea must have at least as much formal reality as the cognitive effect has objective reality (AT VII 41), somehow constrains sensory transmission to include resemblance. For discussion of the latter question see Broughton and Mattern 1978; De Rosa 2013; O'Neill 1987; Schmaltz 1992. Whether or not the intentional result of the process involves resemblance, I think De Rosa and Schmaltz are right to argue that Descartes' causal principle does not put any kind of resemblance constraint on the causal process itself. It is also worth noting that Descartes rarely invokes this principle, or indeed the notion of objective being, outside the context of his Meditation 3 argument for the existence of God (summarized in *Principles* I.17–18) and his Meditation 6 argument for the external world. They do not, notably, arise in his many extensive discussions of sensory transmission.
27. See also *Principles* IV.197, AT VIII-A 320; *Principles* IV.206, AT VII-A 329; and *Comments*, AT VIII-B 359.
28. As early as the *Rules*, Descartes insists that there is nothing more to sensible qualities than configurations of matter that stimulate local motions in the sense organ (AT X 413–14). See also *Treatise* AT XI 153; *Dioptrics* 1, AT VI 92; *Dioptrics* 5, AT VI 118; *Meteors* 8, AT VI 333–34; *Principles* IV.198–99, AT VIII-A 322–23; and *Description of the Human Body*, AT XI 255–56.
29. See *Dioptrics* 1, AT VI 92 and *Meteors* 8, AT VI 333–34.
30. See *Treatise*, AT XI 175 and *Dioptrics* 5, AT VI 128–29.
31. See *Treatise*, AT XI 151, 176, 191.

32. For some of the ways in which Descartes' immediate followers took up the metaphysical question, see Schmaltz 2002. For some influential interpretations of what Descartes thought (or at least should have thought) about the metaphysics of body-to-body causation, see Della Rocca 1999; Des Chene 1996; Garber 1992; Gueroult 1980; Hatfield 1979; O'Neill 1993; Schmaltz 2008.
33. See also *World* 1, AT XI 4–5; *Principles* IV.197, AT VIII-A 320; and *Comments* AT VIII-B 359.
34. Rozemond 1999.
35. See also *Dioptrics* 4, AT VI 112–13; *Meditations* 6, AT VII 88; and *Principles* IV.197, AT VII-A 320–21.
36. See *Dioptrics* 6, AT VI 130–31 and *Meteors* 8, AT VI 333–34.
37. Some will object to my using "sensation" and "idea" interchangeably, but Descartes himself uses them interchangeably in the lead up to this very passage: "In proposing to treat here of light, the first thing I must alert you to is that there may be a difference between the sensation [*sentiment*], we have of it, that is to say the idea [*idée*] formed in our imagination by the mediation of our eyes, and that which is in the objects that produce this sensation in us, that is to say that which is in the flame or the sun" (*World*, AT XI 3).
38. See Hatfield 2017, 456. Whether sensory ideas like color sensations represent *anything* and, if they do, *what* they represent, are vexed questions that have generated far more literature than I can survey here. Suffice it to say, as Hatfield does, that even if one thinks that sensory ideas do not represent anything, their causal link with physical properties in the world means that they can be *used* as signs for those properties, and so acquire "sign-values."
39. *Meditations* 6, AT VII 87–88, italics mine.
40. See *Treatise*, AT XI 143–47, 157.
41. For discussion see Simmons 2001.
42. See Chignell 2009; Ortin Nadal 2018; Ott 2017 for versions of this interpretive strategy.
43. For talk of motions in the brain "occasioning" sensations in the mind, see *Treatise*, AT XI 144, 149, 151, and 176 and *Comments*, AT VIII-B 359. For talk of motions in the brain "making" or "causing" the mind to sense or cognize something, see *Dioptrics* 4, AT VI 114; *Treatise*, AT XI 144, 146, and 176; *Principles* I.24, AT XI 347; and *Passions* I.42, AT XI 360. For talk of motions in the brain "immediately affecting" or "acting immediately on" the soul to make it sense, see *Meditations* 6, AT VII 87 and *Passions* I.35, AT XI 356. For talk of motions in the brain "exciting" sensations in the mind, see *Principles* IV.191, AT VIII-A 318 and IV.198, AT VIII-A 322. Sometimes Descartes simply says that the "nature of the mind is such" that when motions occur in the brain, sensations will occur in the mind, with no metaphysical commitment at all, as in *Dioptrics* 6, AT VI 130; *Treatise*, XI 143; and *Passions* I.36, AT XI 357. And, yes, he sometimes talks of the mind's "inspecting" or "turning to" the brain, as in *Rules* AT X 415–16; *Treatise*, AT XI 177; *Meditations* 6, AT VII 73; and *Replies* 5, AT VII 357 and 387.
44. For a sampling, see Broughton and Mattern 1978; Chignell 2009; De Rosa 2013; Loeb 2005; Ortin Nadal 2018; Ott 2017; Schmaltz 1992.
45. See also *Dioptrics* 5, AT VI 128 and *Treatise*, AT XI 152–59, 174–76.
46. The figures in the *Treatise* suggest that the image re-inverts between the inner surface of the brain and the pineal gland (Figures 29 and 35), but Descartes did not draw the figures, and there is no indication in the text that he thinks the image re-inverts.
47. See also *Dioptrics* 6, AT VI 142 and *Treatise*, AT XI 159.

48. See also *Dioptric* 3, AT VI 106–8; *Dioptrics* 7, AT VI 150; and *Treatise* AT XI 155–56, 159–60, 186.
49. *Treatise*, AT XI 182–88.
50. See *Treatise*, AT XI 160 and *Dioptrics* 6, AT VI 137–38.
51. See Hatfield 2015 for discussion.
52. See *Dioptrics* 6, AT VI 138 and *Treatise,* AT XI 160.
53. Hatfield 2015 makes this point as well.
54. But cf. *Treatise*, AT XI 159, which briefly and without explanation suggests that shape perception results from the retinal image.
55. I assume that the spatial (or spatio-temporal) articulation of the motions that constitute the images is preserved in the pattern of sensations to which they psycho-physiologically give rise in the mind at the "second grade" of sense, which is then augmented by the psychological judgments of the "third grade" of sense. For argument see Simmons 2003.
56. What counts as a "point" on an object is a bit fluid. For the purposes of visual cognition, it will be determined relative to our ability to discriminate it, and this, in turn, will depend on the object's distance from us together with the resolution power of our retinal nerve fibers: "if an object is composed of ten thousand parts that are disposed to send rays to an area at the back of the eye in ten thousand different ways, and consequently are disposed to make us see ten thousand colors simultaneously, nevertheless these parts will only enable the soul to distinguish at most a thousand colors, if we suppose that this area has only a thousand fibers of the optic nerve. Thus ten parts of the object, acting together on each of the fibers can only move it in a single way composed of all the way in which they act, so that the space occupied by each fiber must be regarded as it if were only a single point" (*Dioptrics* 6, AT VI 133–34).
57. See also *Treatise* AT XI 151, 191.
58. In the *Rules*, it is true, Descartes explicitly invokes the seal and wax metaphor: "sensory perception occurs in the same way in which wax receives the shape of a seal" (Rule 12, AT X 412). Even here, though, he acknowledges parenthetically the active role of the looking sense organ: "insofar as our external senses are all part of the body, *even though we apply them to objects through action, viz., local motion*, strictly speaking, sensory perception is merely passive," (Rule 12, AT X 412, italics mine).
59. Even if the latter are modes of only an *embodied* mind, they are still modes of mind.

Literature

Bitbol-Hespériès, Annie. *Le Principe de Vie chez Descartes*. Paris: Vrin, 1990.

Broughton, Janet, and Ruth Mattern. "Reinterpreting Descartes on the Notion of the Union of Mind and Body." *Journal of the History of Philosophy* 16, no. 1 (1978): 23–32.

Brown, Deborah. *Descartes and the Passionate Mind*. New York: Cambridge University Press, 2006.

Chignell, Andrew. "Descartes on Sensation: A Defense of the Semantic-Causation Model." *Philosophers' Imprint* 9, no. 5 (2009): 1–22.

Della Rocca, Michael. "'If a Body Meet a Body': Descartes on Body-Body Causation." In *New Essays on The Rationalists*, edited by R. J. Gennaro and C. Huenemann, 48–82. New York: Oxford University Press, 1999.

De Rosa, Rafaella. "Descartes' Causal Principle and the Case of Body-to-Mind Causation." *Canadian Journal of Philosophy* 43, no. 4 (2013): 438–59.

Des Chene, Dennis. *Physiologia: Natural Philosophy in Late Aristotelian and Cartesian Thought*. Ithaca, NY: Cornell University Press, 1996.

Descartes, René. *Œuvres*. Edited by C. Adam and P. Tannery, 11 vols. Paris: Vrin, 1996.

Garber, Daniel. *Descartes' Metaphysical Physics*. Chicago: University of Chicago Press, 1992.

Greenberg, Sean. "Descartes on the Passions: Function, Representation, and Motivation." *Noûs* 41, no. 4 (2007): 714–34.

Gueroult, Martial. "The Metaphysics and Physics of Forces in Descartes." In *Descartes: Philosophy, Mathematics and Physics*, edited by S. Gaukroger, 196–229. Sussex: Harvester, 1980.

Hatfield, Gary. "Force (God) in Descartes' Physics." *Studies in History and Philosophy of Science* 10, no. 2 (1979): 113–40.

———. "The *Passions of the Soul* and Descartes's Machine Psychology." *Studies in the History and Philosophy of Science* 38 (2007): 1–35.

———. "Animals." In *A Companion to Descartes*, edited by J. Broughton and J. Carriero, 404–25. Oxford: Blackwell, 2008.

———. "Mechanizing the Sensitive Soul." In *Matter and Form in Early Modern Science and Philosophy*, edited by G. Manning, 151–86. Brill Online, 2012.

———. "Natural Geometry in Descartes and Kepler." *Res Philosophica* 92, no. 1 (2015): 117–48.

———. "Descartes: New Thoughts on the Senses." *British Journal for the History of Philosophy* 25, no. 3 (2017): 443–64.

Hattab, Helen. *Descartes on Forms and Mechanisms*. New York: Cambridge University Press, 2009.

Hoffman, Paul. "Cartesian Passions and Cartesian Dualism." *Pacific Philosophical Quarterly* 71, no. 4 (1990): 310–33.

King, Peter. "Medieval Intentionality and Pseudo-Intentionality." *Quaestio* 10 (2010): 25–44.

Koivuniemi, Minna, and Edwin Curley. "Descartes on Mind-Body Union: A Kind of Dualism." *Oxford Studies in Early Modern Philosophy* 7 (2015): 83–122.

Lähteenmäki, Vili. "Orders of Consciousness and Forms of Reflexivity in Descartes." In *Consciousness: From Perception to Reflection in the History of Philosophy*, edited by S. Heinämaa, V. Lähteenmäki, and P. Remes, 455–84. Dordrecht, The Netherlands: Springer, 2007.

Lindberg, David. *Theories of Vision from al-Kindi to Kepler*. Chicago: University of Chicago Press, 1976.

Loeb, Louis. "The Mind-Body Union, Interaction, and Subsumption." In *Early Modern Philosophy: Mind, Matter, and Metaphysics*, edited by C. Mercer and E. O'Neill, 65–85. New York: Oxford University Press, 2005.

MacKenzie, Ann Wilbur. "Descartes on Sensory Representation: A Study of the *Dioptrics*." *Canadian Journal of Philosophy* 20, supp. 1 (1990): 109–47.

Maull, Nancy. "Cartesian Optics and the Geometrization of Nature." *The Review of Metaphysics* 32, no. 2 (1978): 253–73.

O'Neill, Eileen. "Mind-Body Interaction and Metaphysical Consistency: A Defense of Descartes." *Journal of the History of Philosophy* 25, no. 2 (1987): 227–45.

———. "Influxus physicus." In *Causation in Early Modern Philosophy*, edited by S. Nadler, 27–56. University Park, PA: Pennsylvania State University Press, 1993.

Ortin Nadal, Anna. "Mental Activity in Descartes' Causal-Semantic Model of Sensory Perception." Ph.D. diss., University of Edinburgh, Edinburgh, 2018.

Ott, Walter. *Descartes, Malebranche, and the Crisis of Perception*. New York: Oxford University Press, 2017.

Pasnau, Robert. *Theories of Cognition in the Later Middle Ages*. New York: Cambridge University Press, 1997.

Perler, Dominik. "Perception in Medieval Philosophy." In *The Oxford Handbook of Philosophy of Perception*, edited by M. Matthen, 51–65. New York: Oxford University Press, 2015.

Radner, Daisie. "Descartes' Notion of the Union of Mind and Body." *Journal of the History of Philosophy* 9, no. 2 (1971): 159–70.

Rozemond, Marleen. *Descartes' Dualism*. Cambridge, MA: Harvard University Press, 1998.

———. "Descartes on Mind-Body Interaction: What's the Problem?" *Journal of the History of Philosophy* 37, no. 3 (1999): 435–67.

———. "The Nature of the Mind." In *The Blackwell Guide to Descartes' Meditations*, edited by S. Gaukroger, 48–66. Malden, MA: Routledge, 2006.

Schmaltz, Tad. "Sensation, Occasionalism, and Descartes' Causal Principles." In *Mind, Ideas, and Objects: Essays on the Theory of Representation in Modern Philosophy* (*North American Kant Society Studies in Philosophy* 2), edited by P. D. Cummins, G. Zoeller, and North American Kant Society, 37–55. Atascadaro, CA: Ridgeview Publishing, 1992.

———. *Radical Cartesianism: The French Reception of Descartes*. New York: Cambridge University Press, 2002.

———. *Descartes on Causation*. New York: Oxford University Press, 2008.

Simmons, Alison. "Explaining Sense Perception: A Scholastic Challenge." *Philosophical Studies* 73, no. 2 (1994): 257–75.

———. "Sensible Ends: Latent Teleology in Descartes' Account of Sensation." *Journal of the History of Philosophy* 39, no. 1 (2001): 49–75.

———. "Descartes on the Cognitive Structure of Sensory Experience." *Philosophy and Phenomenological Research* 67, no. 3 (2003): 549–79.

———. "Mind-Body Union and the Limits of Cartesian Metaphysics." *Philosophers' Imprint* 17, no. 14 (2017): 1–36.

Wilson, Margaret. "Descartes on the Perception of Primary Qualities." In *Essays on the Philosophy and Science of René Descartes*, edited by S. Voss, 162–76. New York: Oxford University Press, 1993.

3 Cartesian Causation and Cognition

Louis de la Forge and Géraud de Cordemoy

Tad M. Schmaltz

1. Introduction

On a broadly Aristotelian view prominent in scholasticism, animal cognition depends crucially on the causal contact with the material world provided by sensation. René Descartes (1596–1650) was led by his mind–body dualism to reject the existence of genuine cognition in animals that lack rational souls, and he was led by his insistence on the purely intellectual basis of knowledge to reject the epistemic primacy of sense experience. Nonetheless, he retained the assumption that in our own case, at least, sensory cognition presupposes an efficient causal connection to its proper material objects. In later Cartesian thought, however, this assumption was put under considerable pressure. This chapter examines in particular the erosion of the commitment to this assumption that we find in two texts from the French Cartesians Louis de la Forge (1632–1666) and Géraud (aka Gerauld) de Cordemoy (1626–1684), both of which have 1666 as their official date of publication.[1] Though these Cartesians retained the dualism and intellectualism in Descartes that serve to distinguish his position from scholastic orthodoxy, we can see in their works increasing reason to challenge his view that our sensory cognition bears an essential causal relation to the material world.

I begin in the second section of this chapter with a survey of scholastic treatments of the causality involved in sensory cognition as well as the alternative view that we find in Descartes. We will discover that though Descartes distinguishes human sensation from that in other animals much more radically than the scholastics tend to do, he nonetheless retains a scholastic sort of emphasis on both (i) the causal contribution of sensible objects to our sensory cognition, and (ii) the necessity of mind–body union for our sensory experience.

In the next section, I turn to a Cartesian account of sensory cognition in La Forge's *Traité de l'ésprit de l'homme*. La Forge endorses what he takes to be an Augustinian account of sensation that deprives non-human animals of any cognition and that emphasizes the activity of our mind in sensation. La Forge is perhaps better known as a proponent of an

"occasionalist" account of body–body interaction. In some tension with such an account, however, he continues to suggest that the body plays some sort of genuine causal role in sensation.

In the final section, I consider Cartesian developments in Cordemoy's *Discernement du corps et de l'âme*. Though this text offers an unorthodox version of Cartesian physics, it also endorses a form of Cartesian dualism that is incompatible with the possibility of genuine cognition in the case of non-human animals. Moreover, Cordemoy's remarks in the *Discernement* provide the basis for a more consistently occasionalist account of sensation than we find in La Forge. Indeed, Cordemoy's occasionalism serves to reinforce his denial that either our body or external bodies are required for sensation. In this way he offers a more complete Cartesian rejection than does Descartes or even La Forge of the scholastic view that our sensory experience involves an ineliminable causal connection to bodies.

2. Scholasticism and Descartes

The scholastic account of sensory cognition has its source in Aristotle's hylomophic conception of animals. In *De Anima*, Aristotle holds that animals are composites of indeterminate matter and a determining form of a particular species. The soul is then defined as "the form of a natural body having life potentially in it,"[2] and as the ground or principle of the various powers of that body. The soul is the source not only of intellectual powers of human beings, but also of the powers involved in external and internal sensation that are common to humans and other animals.

Though this Aristotelian account was articulated in different ways by different later scholastic commentators, there remained a commitment to the view that all animals, including humans, have sensory powers that operate through the body. We see in Thomas Aquinas (1225–1274), for instance, the view that though the intellectual powers of the human soul are performed by the soul alone, "some operations of the soul are performed by means of corporeal organs, as seeing by the eye, and hearing from the ear" (ST Ia.77.3).[3] Moreover, humans share with the "perfect animals" (i.e., those capable of self-motion) internal sensory powers such as those of common sense, imagination, and estimation, which allow for judgments concerning sensory objects. As in the case of powers associated with external sensation, powers involved with internal sensation operate through corporeal organs.[4] Thus the sensory cognition that we share with other animals has its basis in a living body united to a soul.

Particularly after Thomas there was some controversy in medieval scholasticism over whether the intellectual and sensory powers of human beings are rooted in a single substantial form, namely, the immaterial rational soul, or whether there is a separate material sensory soul—akin to those in non-human animals—that is responsible exclusively for the

sensory powers. The Thomists insisted on the "unitarian" position that the animal composite is unified in virtue of the fact that it has a single substantial form: a rational soul, in the case of humans, and a sensory soul, in the case of other animals. In contrast, defenders of a more "pluralist" outlook, including William Ockham (c. 1287–1347), claimed that differences between sensory and intellectual powers indicate the need for different sources of these powers in human beings.[5] However, even the unitarians granted the fundamental differences between these powers, accepting in particular that sensory powers operate through bodily organs, whereas intellectual powers do not. Their argument was simply that these differences do not preclude the fact that the sensory powers derive from a rational soul.[6] Thus, there was a broad consensus among Aristotelian scholastics on the bodily nature of sensation and sensory cognition in both humans and other animals.[7]

There also was a broad consensus among unitarians and pluralists that even the operations of human intellection depend on sense experience. This tradition is reflected in Thomas's view that all of our knowledge starts with the reception in the external sense organs of "sensible species" transmitted from sensible qualities in external objects. Here it is only the "form" of the quality that is transmitted, not its matter. Thus, the material sense organs do not become literally colored or odorous, say, but merely receive something that allows for sensory cognition of colors or odors. Through the species there is a kind of contact of the soul with the external object it senses. After reception the species is stored as a "phantasm" in the internal senses, where it provides material for further sensory judgments concerning the relevant sensory quality. One finds the very same causal process in non-human animals. What renders humans distinctive is the fact that they have the ability, in the presence of this phantasm, to abstract away all of its accidental material conditions, thereby producing an "intelligible species" that reveals the essence or nature of the sensible thing.

Again, there were disputes among later medieval scholastics over the details of this causal account of sensory cognition. Ockham and his followers allowed for the sensible quality to act at a distance on the external sense organs, and thus rejected the need for the transmission of species from the external object. Also, some later scholastics worried that the positing of sensible and intelligible species might compromise a direct realism that allows for immediate sensory or intellectual contact with external qualities.[8] Yet despite these differences, there was a broad agreement among later scholastics with Thomas's insistence on the sensory basis of human knowledge, so much so that scholasticism came to be associated with the maxim that "nothing is in the intellect that was not first in the senses" (*nihil est in intellectu quod prius non fuerit in sensu*).[9]

This sort of Aristotelian scholasticism was not the only tradition in medieval thought. There also was a strand of Platonism found in the

work of Augustine and later Augustinians. According to this more Platonic view, intellectual cognition depends not on the senses, but rather on the assistance of a divine "illumination" that allows—as the senses cannot—for knowledge of necessary truths. Some passages in Augustine's writings even suggest that the body merely stimulates the soul to form sensations in itself. Later Augustinians drew on such passages, as well as on the Augustinian principle that something cannot act on what is more noble than it, in arguing that sensations are produced not by the action of the body on the soul, but rather by the activity of an "agent sense."[10]

As we will see, Augustine played an important role in the resistance in post-Descartes Cartesianism to a scholastic account of sensory cognition. But more important for such resistance was Descartes' own opposition to such an account. According to Descartes the scholastic "soul" (*anima*) is to be replaced by the "mind" (*mens* or *esprit*), which is revealed by reflection on our own self. His dualist conclusion in the *Meditations* (1641) is that this mind, a substance the nature of which consists in thought alone, is really distinct from, and thus can exist without, body, a substance the nature of which consists in extension alone.

It is Descartes' identification of matter with extension that provides the primary basis for his rejection of a scholastic account of sensory cognition. For Descartes, explanations in physics are to be framed solely in terms of the sizes, shapes and motions of the parts of matter. Likewise, he insists on a physiology that does away with scholastic material souls and their sensory powers. He offers instead a theory of sensation that posits an initial "grade" of sensation, common to humans and other animals, that "is limited to the initial stimulation of the bodily organs by external objects" and "can consist in nothing but the motion of the particles of the organs, and any change of shape and position resulting from this motion." A second grade of sensation, which includes "the perceptions of pain, pleasure, thirst, hunger, colors, sound, taste, smell, heat, cold and the like, which arise from the union and as it were intermingling of mind and body," is restricted to the human mind and has no counterpart in animals that lack such a mind. Also restricted to the human mind is a third grade of sensation that "includes all the judgments about things outside us that we have been accustomed to make from our earliest years—judgments that are occasioned by the motions of these bodily organs" (AT VII.436–37).[11] On this account, then, the sensations and sensory judgments that the scholastics attribute to animals in general belong exclusively to human beings, leaving only mechanistic bodily processes for animals deprived of an immaterial mind.

Descartes also rejects the Thomistic account of the causation of bodily sensation. He ridicules this account, for instance, when he refers in the *Optics*, appended to his *Discourse* (1637), to "all those little images flitting through the air, called intentional species [*especes intentionelles*], which so exercise the imagination of the philosophers" (AT VI.85). The

view of external objects as sending off images of themselves is of course no more than a caricature of the scholastic position.[12] However, the deeper objection in Descartes concerns the scholastic appeal to something other than modes of extension in explaining the bodily alterations involved in sensation. For Descartes, our "clear and distinct" understanding that the nature of body consists in extension alone precludes any such appeal.

In Meditation VI, Descartes also is concerned to distinguish this clear and distinct understanding of body from "teachings of nature" that derive directly from sense experience. Whereas it belongs "to the mind alone" to discover truths about the nature of body, the purpose of our sensations is "simply to inform the mind of what is beneficial or harmful for the composite of which the mind is a part" (AT VII.83). Externally produced sensory cognition is assigned a merely pragmatic task, with the role of discerning the true nature of things being assigned to a pure intellect that "turns toward itself and inspects one of the ideas that are within it" (AT VII.73).[13] Here is an innatist version of the Augustinian emphasis on non-sensory role of divine illumination in the production of intellectual knowledge.[14]

Even though Descartes assigns to the senses a reduced epistemic role, he nonetheless continues to insist that they bear a causal connection to their objects in the material world. In Meditation VI, such a connection is crucial for the rather scholastic-sounding argument presented there for the existence of bodies. This argument starts with the claim—revealed by the "light of nature"—that the efficient cause of the "objective reality" of our sensory ideas of bodies must contain that reality "formally or eminently." Given that God would be a deceiver if he allowed this objective reality to derive from an immaterial substance that can contain the reality only eminently, it must be the case that this cause contains the reality formally, that is to say, is a corporeal substance. Thus "it follows that corporeal things exist" (AT VII.79–80). This argument also provides the basis for the conclusion in this text that bodies that are the source of our sensations "possess differences corresponding to" those sensation, "though perhaps not resembling them" (AT VII.81). Descartes therefore continues to affirm a kind of "realism" that takes sensation to presuppose the existence of bodies as their causal source and object.[15]

There is however a twist in Descartes' account of the causation of sensation that will be important for later Cartesian developments. I have in mind Descartes' claim in a late work, *Comments on a Certain Broadsheet* (1648), that in sensation motions in the sense organs have merely "sent [*immiserunt*] something that gave occasion [*dedit occasionem*] to [the mind] to form [the ideas], at this time rather than another, by means of a faculty innate to it" (AT VIIIB.359). There is some correction here of Meditation VI, which speaks of God as preventing it from being the case that the objective reality of sensory ideas "was emitted [*emitterentur*] by something other than corporeal things" (AT VII.79–80). Nonetheless,

there remains the question of whether the *Comments* involves the rejection of the earlier indication that bodies are true efficient causes of sensory ideas. Though commentators have read the text in this way, there are reasons to think that Descartes wanted to retain some efficient causal role for bodies in sensation.[16] Thus even though in the French translation of the *Principles of Philosophy* (1647) Descartes adds a reference—not found in the original Latin edition (1644)—to "the idea formed in us on the occasion of bodies without [*l'idée se form en nous à l'occasion des corps des dehors*]," he retains the claim from the original edition that "everything we sense comes [*vient*] from something other than our thought" and that our sensation "depends on that thing that affects [*touche*] our senses" (AT IXB.63).[17] Though bodily motions might not be sufficient for the production of sensation, it seems that they still play an essential role in triggering the activity of the mind by efficiently causing such activity. In this way, Descartes need not be seen as rejecting his conclusion in Meditation VI that bodies play an essential causal role in the teachings of nature.

In addition to the argument for the existence of the material world, however, Descartes' conception of mind–body union puts pressure on him to allow for the causal activity of body in sensation. In correspondence with Princess Elisabeth, for instance, Descartes appeals to a "primitive notion" of the union that allows us to conceive "the power [*force*] that . . . the body [has] to act [*d'agir*] on the soul, in causing [*en causant*] its sensations and passions" (May 21, 1643, AT III.665). The special power of the human body to act on the soul with which it is united serves to explain how this soul can have sensations in the first place. Indeed, Descartes sometimes suggests that a mind that is not united to a body would not have any sensory experience, as when he notes that "the human mind separated from the body does not have sensation properly speaking" (Descartes to More, Aug. 1649, AT V.402). Even though he holds that sensations, like all thoughts, are merely modifications of mind, he nonetheless allows for a fundamental difference between sensory thoughts, which require a union with a body, and purely intellectual thoughts, which do not require such a union. Despite his fundamental differences with the scholastics over the nature of sensory cognition, then, there remains a residue in Descartes of the scholastic distinction between the purely intellectual powers of the soul, which operate independently of corporeal organs and so require only the rational soul itself, and its sensory powers, which can operate only by means of suitable corporeal organs and so require a soul–body composite.[18]

3. La Forge and the *Traité*

La Forge was a physician from Saumur who entered the Cartesian orbit when he wrote in 1660 to Descartes' literary executor, Claude Clerselier

(1614–1684), to offer to produce illustrations for, as well as a set of remarks on, the edition of Descartes' *Traité de l'homme* that Clerselier was preparing. La Forge provided both promised additions to this 1664 edition, and two years after its publication he published his own *Traité de l'esprit de l'homme*, which he presented as a continuation of Descartes' *L'Homme*. At the beginning of his text, Descartes promises an account not only "of the body on its own," but also of "the soul, again on its own" and "how these two natures [of soul and body] would have to be joined and united in order to constitute men who resemble us" (AT XI.119–20). However, *L'Homme* itself addresses only the first topic, namely, the body on its own. In his *Traité*, La Forge proposes to complete the Cartesian project by offering on Descartes' behalf the required accounts of soul or mind on its own and the union of soul and body in a human being.

La Forge's discussion in the *Traité* begins with the claim, in its preface, that "the way in which Saint Augustine explains sensation is very far from that of the Schools, and . . . there is only little or no difference between him and M. Descartes on this subject" (TEH 78).[19] This appeal is part of the relatively recent insertion of Augustine into French discussions of Descartes and Cartesianism.[20] To be sure, several friends of Descartes had mentioned the similarities of his views to those of Augustine. However, these comments had relatively little uptake. Thus when the Dordrecht minister Andrea Colvius noted the anticipation of the cogito argument in Augustine, Descartes responded that there is no true anticipation here since whereas Augustine is concerned to appeal to the certainty of our existence "to show that there is a certain likeness of the Trinity in us, in that we exist, we know we exist, and we love the existence and the knowledge that we have," he wants to use the cogito "to show that this *I* which is thinking is an *immaterial substance* with no bodily element" (AT III.247). Moreover, when in his set of comments on the *Meditations* Antoine Arnauld emphasized the affinities of Descartes' dualism to the Platonic "spiritualism" of Augustine, Descartes merely politely thanked Arnauld for "bringing the authority of the divine Augustine to support me" (AT VII.219), and then moved on to a detailed discussion of Arnauld's comments that fails to make any further mention of Augustine. This downplaying of the connection to Augustine contrasts notably with the strategy in some of Descartes' writings of playing up the resemblance of his physics to basic doctrines in Aristotle.[21]

There was in fact relatively little discussion of Augustine among French Cartesians in the decade or so following Descartes' death in 1650. Thus, for instance, there is only a passing mention of Augustine in Clerselier's preface to the first volume of Descartes' *Lettres* (1657), and no mention at all in his preface to the second volume (1659). However, there is an important reference to Augustine in the preface to the Latin translation of Descartes' *L'Homme* that the Dutch schoolteacher—later, professor—Florentius Schuyl published in 1662. In this preface Schuyl notes that the

principal result in Descartes has been "to ruin the dangerous opinion, which dishonors and profanes the image of God," according to which "there is little difference between the human Soul (this incorruptible and immaterial Mind) and the soul of beasts."[22] Schuyl then appeals explicitly to passages in Augustine that he takes to provide support for the position that the operations of the animal body do not involve any spiritual element.[23]

Schuyl's view of the intimate connection of Augustinian spiritualism to Descartes' doctrine of the "beast-machine," as it came to be known, was subsequently imported from the Netherlands into France. In his French edition of *L'Homme*, Clerselier included not only a French translation of Schuyl's preface, but also a preface of his own that offers an extended commentary on Augustine's views in *De Trinitate* X.10. One main goal of Clerselier's remarks is to draw attention to the theologically orthodox result in Descartes that "the human soul is of a spiritual nature, and is really distinct from the body" (Descartes 1664, pref., n.p.). This goal became particularly important given the fact that Descartes' views had been condemned in Louvain as theologically dangerous in 1662, and that his works were placed on the *Index of Forbidden Books* in Rome in 1663.

This is the immediate context for La Forge's appeal to Augustine in the preface of his *Traité*. La Forge in fact outdid Clerselier, citing Augustine no less than fifty-one times[24] and drawing from eleven different Augustinian texts. In the particular appeal to Augustine from the *Traité* that I have cited, La Forge emphasizes the support Augustine provides for Descartes' rejection of a scholastic account of sensation. There are two features of Augustine's view that are notable in this regard. The first is Augustine's insistence that the soul is immaterial and immortal, and thus not something that mere beasts possess. La Forge even attributes to Augustine the view in Descartes that "God can make a machine similar to the body of an animal, which imitates without thought [*connaisance*] all the actions that one commonly believes that the beasts do by thought" (TEH 86).

La Forge's attribution of the theory of the beast-machine to Augustine, which was anticipated in Schuyl's preface, drew particular resistance from early modern critics of Cartesianism. In his "Observations sur la philosophie de Descartes" (1680), for instance, the Port-Royalist Louis-Paul du Vaucel claims that "Saint Augustine who seems to have explicated human sensation as being a simple modification of the soul in the body, has recognized sensitive souls in beasts, by which their sensations are produced and he has never recognized that they are only machines or automata" (Du Vaucel 1950, 118). The conclusion here is that the doctrine of the beast-machine is among "the speculations and inventions of the Cartesian philosophy" (120). Indeed, critics came to view this doctrine as a distinctive feature of Cartesianism, as reflected in comment of the French Jesuit Gabriel Daniel, in his *Suite du Voyage du monde* (1693), that

> the essential point of Cartesianism, and as it were the touchstone, which serves you and other members of your party to recognize faithful followers of your great master: this is the doctrine of automata, which makes pure machines of all animals, in denying them all sensation and thought. With this doctrine, it is impossible not to be a Cartesian, and without it, it is impossible to be one.
>
> (Daniel 1693, 3–4)[25]

According to La Forge, Augustine provides support not only for the Cartesian doctrine of the beast-machine, but also for Descartes' rejection of the scholastic claim that all of our knowledge has its basis in sense experience. Thus he notes in the preface to his *Traité* that Augustine

> rejects the idea that he forms all his knowledge that he has of external things by the senses of his body; because all our sensations, our imaginations, and the vestiges of memory, that give us occasion [*nous donnent occasion*] to remember objects of which they have traces, pertain to the exterior man, that is to say, to our body; and these are only messengers that give occasion to the interior man to perceive what takes place outside.
>
> (TEH 82)

La Forge accepts the version of Augustinian divine illumination in Descartes, according to which the mind has purely intellectual knowledge that derives from its own innate ideas. The senses at most can prompt ("occasion") such knowledge.

Later, in the text of the *Traité*, La Forge draws heavily on Descartes' discussion in the *Comments* in offering a further description of the relation of sensation to intellectual knowledge. There he argues against the scholastic *nihil est in intellectu* principle by noting that

> one can say in two ways that one thing comes from another, namely either because this is the proximate and principal cause [*la cause prochaine et principale*] without which it cannot be, or because it is only the distant and occasional cause [*la cause éloignée et occasionelle*], which gives occasion to [*donne occasion à*] the principal [cause] to produce its effect at one time rather than another. It is thus that workers are the proximate and principal causes of their works, and that those who order them to do it, and who promise them some recompense if they do it, are the accidental and distant causes [*les causes accidentelles et éloignéee*] of them, insofar as they perhaps would not act if one did not order them.
>
> (TEH 172)[26]

La Forge portrays sensations as merely accidental occasions for the intellect to form knowledge of intellectual matters from its own resources.

The previous passage focuses on purely intellectual ideas, such as our idea of God. La Forge's claim seems to be that the mental effects of sensation are merely "occasional" or "accidental and distant causes" of such ideas insofar as those particular sensations are not necessary for our purely intellectual thoughts, just as a particular incentive is not necessary for the activity of the workers. However, he also uses occasionalist language in speaking of the relations between sensations and the motions in the brain. Thus La Forge claims that the action of bodies

> does not extend to the soul, insofar as it is simply a thing that thinks; but insofar as it is united to a body they can be only the distant and occasional cause [*la cause éloignée et occasionelle*] that by means of the union of mind and body obliges the faculty that we have to think and determines it to the production of those ideas of which it is the principal and effective cause [*la cause principale et effective*].
>
> (TEH 176)

It is significant that he does not say here that bodies are only accidental causes of sensory effects in the mind. He could not speak in this way given his own claim that the body truly acts on the mind in the sense that "if the body did not have such a motion, the mind would not have had such a thought" (TEH 245). Following Descartes' view of the teachings of nature, La Forge holds that the purpose of the confused sensations that are non-accidentally connected to particular bodily motions is not to instruct us as to the nature of external objects, but rather to show us what is beneficial or harmful for the bodies to which our souls are united.[27]

When La Forge says that bodily motions are merely "distant and occasional" causes of sensory effects in the mind, it is clear that one thing he wants to indicate—in line with Descartes' views in the *Comments*—is that the production of these effects is mediated by the activity of the mind, which serves as their "primary and effective" cause. However, there remains the question of whether La Forge means to deny that the motions are genuine efficient causes of the activity of the mind. We have seen that there is some reason to think that Descartes did not intend to deny such a view in the *Comments*. La Forge may appear to indicate that he did intend such a denial when he invokes Augustine in support of the position that "none of the corporeal accidents that present themselves before our body, and that external objects send to our senses, act on the soul; but they make something in the body, which sometimes is conformed to the action of the soul, and sometimes is opposed to it" (TEH 93). Yet at other times he appears to allow for a causal understanding of the occasioning relation. For instance, he notes in the *Traité* that it is "not necessary to conclude that body is not the cause of thoughts born in the mind on its occasion." He proposes instead that bodily motions serve as

"equivocal causes" of the formation of sensory ideas, which unlike "univocal causes" can produce effects that differ in nature from them (TEH 213). Moreover, La Forge attempts to defend the possibility of equivocal causation involved in the action of body on mind when he claims that "it is not more difficult to conceive . . . how the body, without being spiritual, can act on the mind, than to conceive how a body has the power to move itself and to communicate its motion to another body" (TEH 235).

Even so, this last claim introduces complications for the view that body can act on mind insofar as La Forge makes clear in the *Traité* that a body *cannot* have "the power to move itself and to communicate its motion to another body." Indeed, it is this argument that seems to mark out La Forge as one of the first Cartesian proponents of "occasionalism."[28] La Forge's argument is that since only God's word has the power "to bring all nature from nothing, it is also by means of this word that he has brought this same nature out of chaos in producing motion in it" (TEH 241). God alone can possess the "motive force" that is responsible for motion in the world. La Forge does allow that bodies and minds can be "particular causes of these same motions," but only in the sense of "determining and obliging the first cause to apply his force and his moving power [*vertu motrice*] on the bodies on which he would not have exercised it without them" (TEH 242).[29]

Insofar as this argument is restricted to the production of motion, it does not require the occasionalist conclusion that God is the sole cause of the sensations that derive from the union.[30] Indeed, La Forge indicates explicitly—again, in line with Descartes' view in the *Comments*—that it is our mind rather than God that serves as the "principal and effective" cause of our sensory ideas. Even in the case of bodies, La Forge at least pays lip service to the view that they can be genuine, albeit equivocal, causes of the productive activity of the mind in sensation. Moreover, he found it difficult to openly reject Descartes' view that the exercise of bodily power is an essential element of soul–body union. I have cited Descartes' claim to Elisabeth that our primitive notion of the union involves the "power" of the body to act on the mind in producing its sensory states. But similarly, La Forge asserts that "the power [*force*] that . . . the body has to excite different thoughts in the mind" is one of the "necessary consequences of this union [of mind and body]" (TEH 244). La Forge was simply too close to Descartes to break completely from the view that the union presupposes the power of the body to cause sensations in the mind to which it is united.

4. Cordemoy and the *Discernement*

Cordemoy was a Parisian lawyer from a well-connected family who also was an active participant in discussions of Cartesianism in various salons, conferences, and académies in Paris during the 1660s.[31] As in the case

of La Forge, Cordemoy is associated with Descartes' *L'Homme*. Work that he contributed to the Cartesian discussions was included, under the title of *Discours de l'action des corps*, in Clerselier's 1664 edition of *L'Homme*. Two years later, Cordemoy's text was published as part of his *Discernement*. The association with Cartesianism continued, with Cordemoy writing a defense of Descartes in the *Lettre écrite à sçavant religieux* (1668), which aims "to show that all that Descartes has written concerning the system of the world, and concerning the souls of beasts, seems to be drawn from the first chapter of Genesis" (OP 257).[32]

Though Cordemoy had an impeccable Cartesian pedigree, his *Discernement* begins by defending a rather anti-Cartesian position. In particular, in this text Discourse I is devoted to a rejection of Descartes' own plenism in favor of a form of a form of atomism that includes the postulation of void space (OP 103–4).[33] This deviation from a more orthodox version of Cartesian physics drew an immediate rebuke from his fellow French Cartesian Robert Desgabets (1610–1678). After Clerselier had sent him a copy of Cordemoy's *Discernment* in 1666, Desgabets wrote back to protest that this work in fact undermines the campaign for the promotion of Cartesianism then fully underway. According to Desgabets, Cordemoy

> without thinking clearly [creates] a schism that is all the more considerable in that it all at once takes away one of the strongest supports of the true philosophy and strengthens notably the side of Monsieur Gassendi, which has already only too much the appearance of supporting itself and of overcoming that of Descartes, although it [Descartes'] may be the only philosophy from which the world can receive a general reformation.[34]

Yet in a passage from an unpublished text dating from 1675, Desgabets includes Cordemoy among those followers of Descartes who offer a "second supplement" of his system that involves merely "the new application that one would make of his principles to phenomena that he had not known, or to truths that he has not spoken."[35] It may be that Desgabets was thinking here not primarily of the *Discernement*, but rather of Cordemoy's *Discours physique de la parole* (1668), a text that offers an account of the understanding of language that is informed by both Cartesian dualism and Cartesian mechanism. Such a work could indeed be seen as applying Descartes' principles to phenomena—such as the production and reception of sound—that he himself did not consider in any detail.[36]

Even so, both mechanism and dualism are prominent in the *Discernement* as well. Thus Discourse II argues that all change in the material world can be explained simply in terms of alterations in arrangements of parts due to motion, without the postulation of any additional scholastic forms and qualities. Discourse III draws the consequence that the

operations of natural objects do not differ in kind from the operations of machines such as clocks. Moreover, in Discourse VI Cordemoy argues for the standard Cartesian conclusion that "the soul, or that which thinks, is different from the body" (OP 153).[37] In defending this conclusion, Cordemoy emphasizes that none of the bodily functions involved in human sense experience include anything similar to sensory thought or feeling. Though he does not explicitly consider the doctrine of the beast-machine in the *Discernement*, Cordemoy does claim in his posthumously published *Traité de métaphysique* (1691) that "beasts are only bodies capable of all the motions that serve vegetative life and growth" (OP 279).[38] For those who adhere to Daniel's view that the doctrine of the beast-machine is "the essential point of Cartesianism," this feature would suffice for the characterization of Cordemoy as a Cartesian even given his heterodox endorsement of atomism.

The contribution to Cartesianism for which Cordemoy is best known, however, is the version of occasionalism that he defends in his *Discernement*. Reversing the order of the discussion of causation in La Forge's *Traité*, Cordemoy's text starts with the issue of the causation of motion, in Discourse IV, and then addresses the issue of the nature of the soul–body union, in Discourse V. In the former, which has the title, "Of the first cause of motion," Cordemoy sets out an argument *more geometrico* for the conclusion that God alone can be a cause of motion. This argument depends initially on the axiom that something cannot have from itself (*de soy*) what it can lose without ceasing to be what it is. This axiom can be linked to the Aristotelian principle that anything that is moved (i.e., changed) must be moved (changed) by another.[39] On Cordemoy's version of it, the principle concerns the possession of something that is accidental to an object, that is, something the object "can lose without ceasing to be what it is." The point of the principle is that an object cannot have any accidental feature "from itself"; rather, it must receive such a feature from something else.[40]

A second axiom in Cordemoy's argument concerns the case of motion, now understood in the Cartesian sense as local motion, as opposed to the more general Aristotelian sense of change, of which local motion is only one instance. According to this axiom, a body can lose (local) motion without ceasing to be what it is; a body at rest, after all, is still a body. Since he assumes that only something that has motion from itself can be a first cause of motion, Cordemoy concludes from his first two axioms that a body cannot be such a cause. By appealing to the further Cartesian axiom that bodies and minds are the only created substances, he then infers that only a mind can be a first cause of motion. The last stage of the argument relies on two final axioms: that the causation of motion is an action, and that only an agent that initiated an action can continue that action. But since God alone initiated motion in creating the world, only God can continue the act of causing motion. Q.E.D. (OP 135–37).

We have seen the claim in La Forge that the power of mind to act on body or of body to act on mind is no more difficult to conceive than the power of one body to act on another body. Strikingly, Cordemoy makes the same claim in the course of his discussion of the union in Discourse V: "Without doubt, it is no more difficult to conceive the action of minds on bodies, or that of bodies on minds, than to conceive the action of bodies on bodies" (OP 149).[41] Whereas La Forge made this claim to counter the objection that the interaction of mind and body cannot be admitted since it is not similar to the action of bodies on each other, Cordemoy's point is rather that both forms of action are equally inadmissible. According to Cordemoy, to say that a body brings about motion in another body by its action is just to say that "on its occasion, this other body starts to be arranged or moved otherwise" (OP 148). The conclusion from Discourse IV is that God alone can move a body on this occasion. But since only God can move body, voluntary motion cannot involve any real motive power in the finite mind. As Cordemoy emphasizes:

> If there is any way of saying that the soul moves the body, it is in the same sense in which it can be said that one body moves another body. For just as when we say that one body moves another when, because of their collision, it happens that the mover of the first now moves the second; so can we say that a soul moves a body when, because it so wills, it happens that whatever was already moving the body comes to move it in the direction the soul wants it to be moved. (OP 144)

There is no fudging here, no attempt—à la La Forge—to claim that our minds are genuine, albeit equivocal, causes of voluntary motion. Rather, Cordemoy holds that the various states of finite souls and bodies can serve as nothing more than occasions for God to move bodies in particular ways.

What is not addressed directly in the *Discernement*, however, is La Forge's claim that bodies are genuine, albeit equivocal, causes of our sensations. The closest Cordemoy comes to addressing this claim is his remark in this text that the soul "even receives new thoughts through the motions of the body following the relationship and dependence that God has established between the two" (OP 148). But this remark seems to leave open the possibility that God has established the relationship by giving the mind the power to produce its own sensory states. It even appears to allow for the possibility that bodily motions are equivocal causes of, and not merely occasions for, the production of sensation.[42]

Nonetheless, I think that the *Discernement* provides material for the defense of a robustly occasionalist account of sensation. In particular, I find that the argument that Cordemoy offers in Discourse IV for the conclusion that God alone can cause motion can also be used to support

the claim that God alone can cause sensation. Recall that the axiom that serves as the first premise of this argument is perfectly general: nothing can have from itself (*de soy*) what it can lose without ceasing to be what it is. To be sure, the second axiom pertains only to bodies, restricted as it is to the claim that a body can lose motion without ceasing to be a body. But so also, it seems, a mind can lose its sensations without ceasing to be a mind, as in the case where that mind has only purely intellectual thoughts.[43] Thus our mind can no more have sensations from itself than the body can have motion from itself. Contrary to the view in Descartes and La Forge, then, the implication here is that our mind cannot be the cause of our own sensations.

We might seem to still have the possibility that the body cause sensations in us. However, Cordemoy could argue that just as body does not have motion *de soy*, so it does not have the power to cause sensations in that manner. For even a body that lacks such a power continues to be a body. Indeed, it seems that only the "first Mind" could have such a power given Cordemoy's remark that no creature can be "the source of its own being; and if it is not the source of its own being, then it has nothing that does not come from elsewhere, and so is not the true cause of anything" (OP 143).

The first axiom of Cordemoy's argument for an occasionalist account of motion requires only that an object cannot have accidental features of itself *de soy*. However, the preceding remark indicates that he is committed to the conclusion that anything that is not the source of its own being must have all other features of itself from elsewhere, including those that it cannot lose without ceasing to be what it is. From this stronger constraint on what can derive *de soy*, it is possible to conclude that God, as the only being that has existence *de soy*, is the only being that can be the true cause of our sensations; bodily motions can serve as no more than mere occasions for his production of them. And indeed, we find this very conclusion in the later *Traité de métaphysique*, which includes the claim that in order to unite a mind to a body, God "[gives] sensations and inclinations to this mind on the occasion of motions of this body" (OP 279).

It is a notable implication of Cordemoy's occasionalist account of sensation that God could cause our sensory states even if our mind were not united to a body, and indeed, even if there were no bodies at all. There is, for instance, the claim in Discourse VI of the *Discernement* that "it may be . . . that I think I have a body without, in fact, having any extension at all. But it cannot be the case that I think without, in fact, having a thought" (OP 154). Cordemoy offers this claim in support of the conclusion that "the existence of the soul is more certain than that of body" (OP 152). This conclusion is connected to Descartes' title for Meditation II: "The nature of the human mind, and how it is better known than the body" (AT VII.23). For in this text, Descartes argues that his mind is better known than body insofar as his judgment that a body exists reveals

more certainly that he exists than that the body does (AT VII.33). However, there is a crucial difference from Cordemoy here. Descartes' claim is only that his sensory judgments cannot reveal the existence of body with any certainty *at this point* in his *Meditations*. This claim is supposed to allow for his conclusion in Meditation VI that we can know with certainty that bodies exist as the causes of the objective reality of our sensory ideas. Moreover, Descartes holds in this text that nature teaches him by means of his internal sensations of pain, hunger, and thirst that these sensations "arise from the union and, as it were, intermingling of the mind with the body" (AT VII.81). In contrast, for Cordemoy it is only faith that can assure us of the union of our mind with body. Whereas our thought renders it certain that we have a mind, "as for the body, I will say that I have one because, while this is not evident to me by the natural light, faith suffices to keep me from doubting it" (OP 155).

The indication in Cordemoy that not even our sensations can render us certain of the existence of bodies is part of an "idealist" development in post-Descartes Cartesianism. After the publication of Cordemoy's *Discernement*, there was a dispute between Nicolas Malebranche and his skeptical critic Simon Foucher over whether we can know that there is an external material world. In a critique published in 1675, Foucher took exception to the "supposition" in the first volume (1674) of Malebranche's *Recherche de la vérité* that extension exists external to our mind. Foucher cited, in particular, that claim in the first book of Malebranche's text that even though we sometimes falsely imagine that certain bodies are present, as in the case of delirium, "we are not deceived in believing that [extension and its modifications] have an existence that is real and independent of our mind, although it is very difficult to prove demonstratively" (OCM I.122).[44] Foucher protested that there can be no demonstration of the extra-mental existence of extension given that our sense experience reveals the existence only of certain modifications of our soul (Foucher 1969, 79). This prompted Malebranche to retort, in the second volume (1675) of his *Recherche*, that he was not obliged to offer a proof of the existence of extension since his purpose in this section of his text was "only to combat the errors of the senses with regard to the sensible qualities" (OCM II.479). Yet in the first volume Malebranche had already made the point that "there is no necessary connection between the presence of an idea to the human mind and the existence of the thing this idea represents" (OCM I.121). Moreover, in the sixth of the "Éclaircissements" first published with the *Recherche* in 1678, Malebranche argues, contrary to Descartes' view in Meditation VI, "that reason can provide no argument for the existence of the material world that has the force of a mathematical demonstration" (OCM III.64). Malebranche's conclusion here, in line with Cordemoy's earlier conclusion in the *Discernement*, is that faith alone can render us certain of the existence of the material world.

Malebranche's position is further represented in the writings of his follower, the French Oratorian Henri de Lelevel (1665–1750). In *La vraye et la fausse métaphysique* (1694), Lelevel argues against a version of Cartesianism in the work of Pierre-Sylvain Regis (1632–1707) that includes a distinction between "soul" (*âme*), which has sensory thoughts that involve an essential dependence on body, and "mind" (*esprit*), which has purely intellectual thoughts that are independent of body.[45] In response to this distinction, Lelevel insists that

> God can make a soul out of a mind without uniting this mind to an organic body. For if God, without having created any body, acts in a mind as he acts on it when [the body] is present and according to bodily motions, this mind would no longer be simply a substance that thinks. This would be a substance that also has an infinity of sensations in relation to possible bodies, sensations as real as those we presently feel.
>
> (Lelevel 1694, vol. I, 97)

Given the occasionalist position that God alone is the cause of our sensations, there is nothing to prevent the conclusion that he could cause our sensory states even in the absence of bodies. Thus the mere fact that we have sensations can reveal with certainty neither that these sensations are related to actually existing bodies, nor that there is a particular body to which our mind is united.

The case of Malebranche shows that this occasionalist line of argument in Lelevel involves an explicit break with Descartes' claim in Meditation VI that our sensory ideas presuppose the existence of external bodies.[46] But Lelevel is also departing from the suggestion in Descartes that a union with a body is necessary for the mind to have sensory thoughts. Though early in the *Meditations* he had claimed that our sensations do not allow us to be immediately certain that we have a body, Descartes seems to hold in the end that only a mind united to a body can have sense experience. Similarly, La Forge insists that a mind that is not united to a body has only "a pure understanding, by which . . . the mind perceives without any corporeal idea all sorts of objects, whether material or immaterial" (TEH 150). In contrast, it is only in virtue of its union with a body that the mind is capable of sensations or acts of imagination that require the input of corporeal ideas.[47] The intuition common to Descartes and La Forge is that non-intellectual thoughts require a special kind of nature that the mind can possess only by means of its union with a body. God could no more give something that lacks such a nature sensations than he could move something that lacks the nature of body.

According to Cordemoy, however, and later Malebranche and Lelevel, the fact that God alone is the cause of our sensations allows us to conclude that he can produce sensory states even in a mind that is not united

to a body. With this sort of Cartesian occasionalism we have lost the last remnants in Descartes and La Forge of a scholastic realism that posits a mind that is in causal contact with the material world through its union with a particular body.

Notes

1. There is evidence, however, that La Forge's text was already in circulation by the end of 1665; see the biographical introduction to La Forge 1974, 58–61.
2. *De Anima* II.1, 412a18–19, in Aristotle 1984, vol. I, 656.
3. ST = Thomas Aquinas 1964–81; cited by part.question.article.
4. See ST Ia.78.4. For a comparison of the views of Thomas and Aristotle on the role of the corporeal sense organs in sensation, see Magee 2000.
5. On this argument for pluralism in Ockham, see Adams 1987, vol. II, 654–64.
6. According to Thomas, the human rational soul "virtually" contains the lower sensory soul; see ST Ia.46.4 ad 3.
7. For discussion of the debate over the plurality of substantial forms in later medieval philosophy, see Cross 1998, 47–68.
8. For a discussion of these medieval debates, see Pasnau 1997.
9. On the origin of this maxim, see Cranefield 1970.
10. For a discussion of the medieval view, deriving from Augustine, that the mind is active in sensation, see Silva 2014. For the critique in Thomas of an Augustinian view of sensation and intellectual knowledge, which also seeks to distance such a view from Augustine himself, see ST Ia.84.6.
11. AT = Descartes 1964–74; cited by volume.page.
12. Indeed, Aquinas himself warns against the view—which he attributes to Democritus—that sensation occurs by way of some "discharge" of something from external objects (*per modum defluxionis*), holding instead that it occurs "by some other operation" (*per quandam operationem*) (ST Ia.84.6).
13. The contrast here is with acts of imagination that make some use of the body; see note 47.
14. Though, as I indicate in §3, Descartes was not himself much interested in the relation of his views to those of Augustine.
15. As we will discover in §4, this sort of realism can be contrasted with a kind of Cartesian "idealism" that takes sensation to be possible even in the absence of bodies.
16. For a critique of various versions of the view in the literature that this passage denies that bodily motions are genuine efficient causes of sensations, see Schmaltz 2008, 149–57.
17. Here I side with the rejection in Scott 2000, 508–10, of the claim in Garber 1993, 22, that the French edition of the *Principles* indicates a shift in Descartes' thought away from the position that bodies cause sensations.
18. See, for instance, Thomas's endorsement of this conclusion in ST Ia.77.5.
19. TEH = La Forge 1974.
20. I am drawing here on my discussion of the relation of Augustine to Descartes and French Cartesianism in Schmaltz 2017, 122–38.
21. See for instance Descartes' appeals to Aristotle both in correspondence (e.g., Descartes to Chalet, Oct. 1644, AT IV.141) and in his published writings (e.g., *Principles* IV.200, AT VIIIA.323).
22. Quoting here from the French translation of Schuyl's preface, in Descartes 1664, 412.
23. See Descartes 1664, 428–29, 435.
24. As claimed in Manning 2012, 150.

25. On the role of the theory of the beast-machine in the "polemical conception" of Cartesianism in France, see Roux 2013.
26. La Forge is following closely Descartes' remarks in the *Comments* at AT IXB.360.
27. See the remarks in TEH 253–54.
28. On the place of La Forge in the history of occasionalism, see Clair 1976. Cf. the account of the different forms of Cartesian occasionalism in Schmaltz 2017, chap. 4.
29. For a more complete consideration of La Forge's argument here that takes into account complications resulting from his distinction between motive and determining forces, see Schmaltz 2017, 190–98. Though La Forge presents his account of body–body interaction as simply drawn from Descartes, there are reasons to think that Descartes himself allowed for motive (and resisting) forces in bodies; see Schmaltz 2008, chap. 3.
30. However, there is the argument in Nadler 2011 that the suggestion in La Forge that divine conservation of the world consists in a kind of "re-creation" of it in fact commits him to the conclusion that "the soul is as inert with respect to its modifications as any body is with respect to *its* modifications, indeed, as any finite creature *must* be" (135). For a critique of this argument, see Schmaltz 2017, 194–96.
31. On Cordemoy's participation in these discussions, see the introduction to Cordemoy 1968, 26–33, as well as Battail 1973, 6–10.
32. OP = Cordemoy 1968.
33. For more on Cordemoy's arguments for atoms and the possibility of a void, see Battail 1973, chap. 4; and Ablondi 2005, chap. 2. Descartes presents his own arguments against atoms and the void in *Principles* II.8–20, AT VIIIA.44–52.
34. This unpublished letter is quoted in Prost 1907, 158. In the letter, Desgabets also responds to each of Cordemoy's arguments. For discussion of his responses, see Ablondi 2005, 45–49.
35. Desgabets 1983–85, vol. V, 156. Desgabets includes La Forge in the ranks of those Cartesians offering a second supplement. The contrast here is with those, including Desgabets himself, who offer a "first supplement" that proposes "to rectify [Descartes'] own thoughts in those things . . . where he has left the correct path that leads to the truth" (156).
36. For discussion of Cordemoy's *Discours*, see Battail 1973, chap. 7. As Battail notes, this work can be considered as a seventh discourse of the *Discernement* (194), especially since it focuses on the issue of our knowledge of other minds, something that Cordemoy had promised to discuss in Discourse VI of this text (OP 155), but never got around to addressing there.
37. I have consulted the translation of the *Discernement* and the *Traité de métaphysique* in Cordemoy 2015.
38. There is also his claim in the *Discours* that "the beasts do not need a soul to cry out or form words" (OP 231).
39. This principle derives from an Aristotelian understanding of motion. At one point Descartes cites the scholastic stipulation—based on Aristotle's discussion in *Physics* III.1—that "motion is the actuality of a potential being, insofar as it is potential" (*motus est actus entis in potentia, prout in potentia est*; cited in AT XI.39). Because something cannot give what it itself does not actually have, a being that is merely in potency with respect to some property cannot give itself that property. Thus, it must be something else that actualizes its potential to possess the property.
40. It might seem that there is a complication for this version of the principle in the case of "necessary accidents," which on a scholastic view necessarily

derive from the essence of an object even though they are outside of this essence, and thus accidental to the object. However, such accidents arguably do not fall under Cordemoy's version of the principle insofar as an object cannot exist without such accidents, and therefore cannot lose them while remaining what it is. As I indicate below, however, Cordemoy thinks that objects other than God cannot have *de soy* even those features that are necessary to them.

41. Though there is to my knowledge no record of any interaction between Cordemoy and La Forge, it is tempting to suppose that they compared notes at a certain point, perhaps at some Paris gathering they attended together.
42. For this point, see Nadler 2005, 49. However, in the remarks that follow I am more sanguine than Nadler is that the *Discernement* provides the resources for precluding this possibility.
43. I take Cordemoy to assume here, along with Descartes and La Forge, the possibility of a mind with only non-sensory thoughts.
44. OCM = Malebranche 1958–84; cited by volume.page.
45. According to Regis, souls are "modal beings" with temporal modifications of thought, whereas minds are "substantial beings" with thoughts that are outside of time. For further discussion of this position in Regis, see Schmaltz 2002, 177–78, 184–86, 188–92, 232–33, 253–54.
46. For a discussion of various early modern critiques of this claim in Descartes, see McCracken 1998.
47. The inspiration here is Descartes' own distinction at the start of Meditation VI between pure understanding, where the mind "turns toward itself and inspects one of the ideas that are within it," and imagination, where the mind "turns toward the body and looks at something in the body that conforms to an idea understood by the mind or perceived by the senses" (AT VII.73).

Literature

Ablondi, Fred. *Gerauld de Cordemoy: Atomist, Occasionalist, Cartesian*. Milwaukee, WI: Marquette University Press, 2005.

Adams, Marilyn McCord. *William Ockham*, 2 vols. Notre Dame, IN: University of Notre Dame Press, 1987.

Aquinas, Thomas. *Summa Theologiae*. Edited by Blackfriars, 61 vols. New York: McGraw-Hill, 1964–81.

Aristotle. *The Complete Works of Aristotle*. Edited by Jonathan Barnes, 2 vols. Princeton, NJ: Princeton University Press, 1984.

Battail, Jean-François. *L'avocat philosophe: Géraud de Cordemoy, 1626–1684*. The Hague: Martinus Nijhoff, 1973.

Clair, Pierre. "Louis de la Forge et les origins de l'occasionalisme." *Recherches sur le XVIIe siècle* 1 (1976): 63–72.

Cordemoy, Géraud de. *Œuvres philosophiques: avec une étude bio-bibliographique*. Edited by Pierre Clair and François Girbail. Paris: Presses Universitaires de France, 1968.

———. *Six Discourses on the Distinction Between the Body and the Soul and Treatise on Metaphysics*. Translated by Steven Nadler. Oxford: Oxford University Press, 2015.

Cranefield, Paul. "On the Origin of the Phrase *Nihil est in intellectu quod non prius fuerit in sensu*." *Journal of the History of Medicine and Allied Sciences* 25 (1970): 77–80.

Cross, Richard. *The Physics of Duns Scotus: The Scientific Context of a Theological Vision*. Oxford: Clarendon Press, 1998.

Descartes, René. *L'Homme de René Descartes, et un Traitté de la formation du foetus, du mesme auteur. Avec les Remarques de Louis de la Forge, Docteur en Medecine, demeurant à la Fleche, Sur le Traitté de l'Homme de René Descartes, et sur les Figures par luy inventées*. Paris: Angot, 1664.

———. *Œuvres de Descartes*. Edited by Charles Adam and Paul Tannery, 11 vols. Paris: Vrin, 1964–74.

Desgabets, Robert. *Dom Robert Desgabets: Œuvres philosophiques inédites*. Edited by Joseph Beaude, 7 vols. Amsterdam: Quadratures, 1983–85.

Du Vaucel, Louis. "Observations sur la philosophie de Descartes." In *Descartes et le cartésianisme hollandaise. Études et documents*, edited by E. J. Dijksterhuuis, et al., 113–30. Amsterdam and Paris: Presses Universitaires de France, 1950.

Foucher, Simon. *Critique de la Recherche de la vérité*. Edited by R. A. Watson. New York: Johnson, 1969.

Garber, Daniel. "Descartes and Occasionalism." In *Causation in Early Modern Philosophy*, edited by Steven Nadler, 9–26. University Park: Pennsylvania State University Press, 1993.

La Forge, Louis. *Œuvres philosophique, avec une étude bio-bibliographique*. Edited by Pierre Clair. Paris: Presses Universitaires de France, 1974.

Lelevel, Henri de. *La vraye et la fausse métaphysique . . . où l'on réfute les sentimens de M. Regis*, 2 vols. Rotterdam: Leers, 1694.

Magee, Joseph M. "Sense Organs and the Activity of Sensation in Aristotle." *Phronesis* 45 (2000): 306–30.

Malebranche, Nicolas. *Œuvres complètes de Malebranche*. Edited by André Robinet, 20 vols. Paris: Vrin, 1958–84.

Manning, Gideon. "Three Biased Reminders About Hylomorphism in Early Modern Science and Philosophy." In *Matter and Form in Early Modern Science and Philosophy*, edited by Gideon Manning, 1–32. Leiden: Brill, 2012.

McCracken, Charles. "Knowledge of the Existence of Body." In *The Cambridge History of Seventeenth Century Philosophy*, edited by Daniel Garber and Michael Ayers, vol. 1, 624–47. Cambridge: Cambridge University Press, 1998.

Nadler, Steven. "Cordemoy and Occasionalism." *Journal of the History of Philosophy* 43 (2005): 37–54.

———. "Louis de la Forge and the Development of Occasionalism: Continuous Creation and the Activity of the Soul." In *Occasionalism: Causation Among the Cartesians*, 123–41. Oxford: Oxford University Press, 2011.

Pasnau, Robert. *Theories of Cognition in the Middle Ages*. Cambridge: Cambridge University Press, 1997.

Prost, Joseph. *Essai sur l'atomisme et l'occasionalisme dans la philosophie de Descartes*. Paris: Paulin, 1907.

Roux, Sophie. "Pour une conception polémique du cartésianisme: Ignace-Gaston Pardies et Antoine Dilly dans la querelle des bêtes." In *Qu'est-ce qu'être cartésien?* Edited by Delphine Kolesnik-Antoine, 315–37. Lyon: ENS Éditions, 2013.

Schmaltz, Tad M. *Radical Cartesianism: The French Reception of Descartes*. Cambridge: Cambridge University Press, 2002.

———. *Descartes on Causation*. Oxford: Oxford University Press, 2008.

———. *Early Modern Cartesianisms: Dutch and French Constructions*. Oxford: Oxford University Press, 2017.

Scott, David. "Occasionalism and Occasional Causation in Descartes's Philosophy." *Journal of the History of Philosophy* 38 (2000): 503–32.

Silva, José Filipe. "Medieval Theories of Active Perception: An Overview." In *Active Perception in the History of Philosophy: From Plato to Modern Philosophy*, edited by José Filipa Silva and Mikko Yrjönsurri, 117–46. Dordrecht: Springer, 2014.

4 Causation and Cognition in Malebranche

Stephan Schmid

1. Introduction

Nicolas Malebranche (1638–1715) is well known for his occasionalist view of causation that "there is only one true cause because there is only one true God; that the nature or power of each thing is nothing but the will of God; that all natural causes are not *true* causes but only *occasional* causes" (*SAT* 6.2.3, LO 448; OCM 2:312). What is less known, and what I will argue in this chapter, is that according to Malebranche's occasionalism, causation is intimately linked with (divine) cognition in at least two ways. Let me explain: Malebranche's occasionalism is a revisionist theory of causation, which states that what we usually identify as natural causes of effects are, in fact, not real or true causes, but only occasions for God, the single true cause, to bring about corresponding effects. Accordingly, what we usually describe as one single relation of natural causation, Malebranche analyzes in terms of two relations: (i) a "true causation" relation emanating from God, and (ii) a relation of "taking something as an occasion to cause something" that also proceeds from God. What I am going to defend here is that, for Malebranche, both these relations presuppose cognition. With respect to the relation of true causation, I will point out that in Malebranche's view God's being a true cause of an effect requires him to know this effect. Similarly, with respect to the second relation, I will show that God's taking something as an occasion for bringing about an effect requires him to know not only the things he takes as an occasion to do something, but the whole course of the actual and all other possible worlds. More precisely, then, I will defend the thesis that for Malebranche, God can only figure as the true cause of natural effects on condition that he knows (i) these effects and (ii) the occasions upon which he brings them about (which in turn requires him to know the course of all possible worlds). In fact, by defending this thesis—which might not be too contentious after all—I will also, and perhaps more contentiously, provide an explanation for *why* Malebranche thought that causation is so linked with divine cognition.

My first section is devoted to claim (i) of my thesis—viz. that for Malebranche, God's being a true cause of an effect requires him to know this effect and how to bring it about. As I will argue, this claim figures as an important premise for a central, yet comparatively neglected argument for Malebranche's occasionalism. It is, in other words, crucial for establishing Malebranche's occasionalism in the first place. The second section will address claim (ii) of my thesis—viz. that for Malebranche, God needs to know the occasions upon which he brings about his effects and the course of all possible worlds. As I will show, this claim is pivotal for Malebranche's enactment of his occasionalism, that is, his detailed theory of how occasionalist causation works. The third and final section will summarize my results and thereby vindicate my thesis.

2. Establishing Occasionalism: God as the Only True Cause

Malebranche provided several arguments for occasionalism. Some of those—such as the "no necessary connection" argument and the "conservation as continuous creation" argument—are well known and widely discussed in the literature.[1] According to the "no necessary connection" argument (most influentially articulated in Malebranche's *Search After Truth* 6.2.3, LO 450; OCM 2:316), God is the only true cause, since a true cause necessitates its effect and God's will is the only potential cause for which this is (truly) the case; according to the "conservation as continuous creation" argument (most clearly laid out in his *Dialogues on Metaphysics and Religion* VII.10, JS 115–16; OCM 12:160), the operation of finite causes is ruled out by the fact that by his conservation, which amounts to nothing but a continuous creation, God fully determines every state of affairs and thereby "preempts" every causal contribution of finite things. In this chapter, I want to focus on another argument, which has received comparatively less thorough treatment in Malebranche scholarship and was often deemed to be unconvincing.[2] For reasons that will soon become plain, we can call it the "epistemic argument":

> I deny that my will is the true cause of my arm's movement, of my mind's ideas, and of other things accompanying my volitions, for I see no relation whatever between such different things. I even see clearly that there can be no relation between the volition I have to move my arm and the agitation of the animal spirits, i.e., of certain tiny bodies whose motion and figure I do not know and which choose certain nerve canals from a million others I do not know in order to cause in me the motion I desire through an infinity of movements I do not desire. I deny that my will produces my ideas in me, for I do not see even how it could produce them, because my will,

> which is unable to act or will without knowledge, presupposes my ideas and does not produce them.
>
> (*Elucidation* XV, LO 669; OCM 3:225–26, translation corrected)

In the quoted version, the argument is obviously incomplete. In particular, Malebranche does not explicitly draw the intended inference that because I cannot be a real cause of my bodily movements and my ideas, God must be their real cause. However, the gist of the argument is clear enough. Malebranche starts with the observation that I do not know the causal intermediaries of my bodily motions and that I do not know my ideas unless I already have them. We can thus put the following observation as the starting point for Malebranche's argument:

(O) With respect to all effects *y* of which I am usually considered a cause, I either do not know *y* (before *y* has been produced) or I do not know the causal intermediaries of *y*.

From this observation, Malebranche derives the (intermediary) conclusion of his argument, which we can render as follows:

(C1) I cannot be the true cause of my effects.

The intended final conclusion of Malebranche's argument remains implicit in the quoted passage, but can easily be supplied:

(C2) Given that only an omniscient being knows all (possible) effects (including all their causal intermediaries), only God can be a true cause.

For Malebranche's occasionalist conclusion that only God can be a true cause of bodily motions to follow, it is crucial that Malebranche holds that these motions involve "an infinite number of particles that collide with each other" (*Elucidation* XV, LO 671; OCM 3:228). This disqualifies every intelligent being that falls short of being infinite or omniscient as a true cause of bodily motions and leaves God as the only remaining candidate for being a true cause.

There is no question where Malebranche's argument is heading. What is unclear, however, is the inference from his initial observation to his conclusion. What brings us from (O) to (C1)? An obvious suggestion is to postulate the following principle:

(EC) For all *x*, *x* can only be a true cause of *y* if *x* knows *y* and all causal intermediaries of *y*.

Because this principle states that knowledge or cognition is a condition for something to be a true cause, we can call it the epistemic condition for causation, hence (EC). It bridges the inferential gap between (O) and (C1), and thus neatly completes Malebranche's enthymemic argument. But this is not the only reason to attribute (EC) to Malebranche. In other passages, Malebranche endorses (EC) quite explicitly; for instance, when he rhetorically asks in his *Méditations Chrétiennes* V.11: "Can one do, can one even want to do what one does not know how to do?" (OCM 10:62).[3]

This leaves us with the following epistemic argument for occasionalism ("epistemic" because it relies on the epistemic condition for causation (EC)):[4]

(O) With respect to all effects *y* of which I am usually considered a cause, I either do not know *y* (before *y* has been produced) or I do not know the causal intermediaries of *y*.
(EC) For all *x*, *x* can only be a true cause of *y* if *x* knows *y* and all causal intermediaries of *y*.
∴ (C1) I cannot be the true cause of my effects.
∴ (C2) Given that only an omniscient being knows all (possible) effects (including all their causal intermediaries), only God can be a true cause.

This argument is certainly valid. At the same time, it is at least *prima facie* difficult to see why it could be deemed sound. Why should anyone accept the epistemic condition for causation (EC)? Unless one is already convinced by occasionalism, it seems utterly implausible to assume that a cause must know its effect. But if (EC) could only be defended by an appeal to occasionalism, Malebranche's epistemic argument would be dialectically futile. Malebranche, at any rate, did not give an explicit rationale for his startling epistemic condition for causation. In light of the glaring implausibility of (EC), it is not surprising that commentators had difficulties making philosophical sense of Malebranche's view, so much so that many of them eventually confined themselves to pointing out historically antecedent defenders of the epistemic condition for causation (EC).[5] From a philosophical point of view, such a return to the history of ideas is unsatisfying. It precludes us from appreciating Malebranche as a good philosopher at this point, as someone who embraces his view on the basis of good epistemic reasons as opposed to certain historical influences. So, by what consideration might one become convinced of the view that a cause needs to know its effect?

Emanuela Scribano has provided an intriguing historical analysis of the epistemic condition for causation (EC), tracing it back to Galen. As she explains, Galen postulated this condition due to his general project of "merging Aristotelian biology with Platonic metaphysics, introducing or rather reintroducing an intelligent mind, a demiurge, to account for the

order of nature" (Scribano 2011, 71). While this might be true, it does not help us to make philosophical sense of the epistemic condition for causation (EC). For even if the epistemic condition serves Galen's case for our world being the product of an intelligent demiurge, this hardly suffices to justify (EC) in the first place. On the contrary: if the existence of a demiurge is to be derived from the epistemic condition for causation, we should have independent evidence for (EC). Yet if Scribano's reconstruction of Galen's rationale is correct, then there is no such evidence.

Fortunately, it is possible to shed some philosophical light on Malebranche's startling view, or so I will argue in the remainder of this section.[6] We can reconstruct an argument for the epistemic condition for causation on Malebranche's behalf by returning to a line of criticism that Descartes launched against the Aristotelian theory of causal powers. As Descartes argued, assuming Aristotelian powers such as gravity—a body's power to move towards the center of the earth—commits us to assuming that the things equipped with such powers have some knowledge or cognition of the effects they strive to bring about by virtue of these powers. However, according to Descartes, this is absurd, because only minds can have knowledge, and it shows that the very conception of an Aristotelian power involves a category mistake: it attributes to bodies what can only be attributed to minds. For Descartes, it is therefore clear that quite similar to the ideas of sensory qualities, ideas of Aristotelian powers—such as that of gravity—are only to be gleaned from our mind, yet are erroneously projected to bodies. As he explained:

> [W]hat makes it especially clear that my idea of gravity was taken largely from the idea I had of the mind is the fact that I thought that gravity carried bodies towards the centre of the earth as if it had some knowledge of the centre within itself. For this surely could not happen without knowledge, and there can be no knowledge except in a mind.
>
> (Descartes, *Sixth Reply*, CSM II 298, AT VII 442)

The crucial question with respect to Descartes' consideration is: why should we assume that a body endowed with gravity could not strive towards the center of the earth without having knowledge [*cognitio*] of this center? Descartes did not offer any further explanation here, but I submit that he was drawing on the observation that Aristotelian powers are states that are directed towards the potential effects that they strive to bring about. Consider Descartes' example of gravity. By its gravity, a body strives and is thereby directed towards being at the center of the Earth. This is plain from the fact that a heavy body invariably displays its striving towards this center, regardless of its position (it will invariably move towards the Earth's center regardless of where it is dropped: in Abu Dhabi, New York, or Capetown). Moreover, a heavy body's

directedness remains even if it is impeded from displaying its striving towards the center. Even in this case, the body constantly exerts pressure on its impediment and will immediately start moving towards the center of the Earth when the impediment is removed. Now, this internal directedness of powers toward their manifestations bears striking similarities to the internal directedness of our thoughts or cognitions towards their intentional object. Perhaps the most striking one consists in the fact that a power will be directed towards its potential manifestation or effect regardless of whether it will ever actually give rise to this manifestation or effect, just as a thought about a certain castle can be about this castle regardless of whether it actually exists or not.[7] Given that one is philosophically uneasy about accepting the internal directedness of powers as an inexplicable or basic feature, it is suggestive to analyze it in terms of cognitive intentionality—the kind of feature we all know from our own thoughts or cognitions.[8] In fact, this analysis is so suggestive that it has even been endorsed by contemporary metaphysicians, who, like Descartes, take it as a basis to refute the assumption of real powers or dispositions. David Armstrong is a striking case in point:

> "If this object is suitably struck, then it is caused (or there is a certain objective probability of being caused) to shatter." It is, as it were, an inference ticket (as Ryle said), but one that exists in nature (as Ryle hardly would have allowed). That is all there is to a particular disposition. Consider, then, the critical case where the disposition is not manifested. *The object still has within itself, essentially, a reference to the manifestation that did not occur*. It points to a thing that does not exist. This must remind us of the *intentionality* of mental states and processes, the characteristic that Brentano held was the distinguishing mark of the mental, that is, their being directed upon objects or state of affairs that need not exist.
>
> (Armstrong 1997, 79)

Now, I do not endorse Armstrong's argument, as I do not think that similarities between powers or dispositional states and intentional mental states warrant an outright identification of these kinds of states.[9] However, the argument demonstrates how suggestive it is to reject real powers or dispositions on account of the consideration that if there really were such powers or dispositions, then they would exhibit a kind of internal directedness or intentionality which we know (or is widely held) to be the characteristic of mental states. It is this sort of consideration that I take to be operative in Descartes' rejection of Aristotelian powers.[10] What is more—and this is the main point of bringing up this issue in the first place—Descartes' (alleged) and Armstrong's (explicit) consideration against the assumption of real powers or dispositions can help us

to articulate a Cartesio-Armstrongian argument for Malebranche's epistemic condition for causation (EC):

(1) A true cause *x* of effect *y* brings *y* about in virtue of a power to bring *y* about.
(2) A power to bring *y* about is or requires an intentional state directed towards bringing *y* about.
(3) Intentional states directed towards *z* rely on cognition of *z*.
∴ (C1) A true cause *x* of effect *y* needs to have cognition of *y* (and of all causal intermediaries of *y* through which *x* causes *y*).
∴ (EC) For all *x*, *x* can only be a true cause of *y* if *x* knows *y* and all causal intermediaries of *y*.

By calling this argument the "Cartesio-Armstrongian argument," I do not mean to imply that either Descartes or Armstrong would actually endorse it. They clearly would not: while Armstrong simply denied its first premise,[11] Descartes would have rejected its conclusion, conceding that "it is true we are not conscious of the manner in which our mind sends the animal spirits into particular nerves; for that depends not on the union of the mind with the body" and maintaining that the mind's capacity to "set the body in motion is . . . one of those self-evident things which we only make obscure when we try to explain them in terms of other things."[12] The label "Cartesio-Armstrongian argument" is rather due to the fact that its perhaps most controversial premise (2) is an assumption that seems to have been adopted by Descartes and Armstrong for philosophically comprehensible reasons, which Malebranche might have shared. As already noted, Malebranche did not provide any argument for (EC), let alone the Cartesio-Armstrongian argument. There is textual evidence, however, that he would have been happy to accept all of its premises.

Malebranche's agreement with premise (1) of the Cartesio-Armstrongian argument that true causes bring about their effects in virtue of a power is plain from his denial of bodies being the true causes of their motion on the grounds that "no body, large or small, has the power to move itself" (*SAT* 6.2.3, LO 448; OCM 2:312). That Malebranche also held that something with the real power to bring *z* about must have some cognition or knowledge of *z* (as stated by premises [2] and [3] of the Cartesio-Armstrongian argument) seems to be implied by the following passage:

> Do you discover any power in the idea you have of matter? You don't answer. But suppose that this body has truly the power to move itself, in what direction will it go? At what speed? You fall silent again. I even want that this body has sufficient freedom and *knowledge* to

> determine its motion and degree of speed. . . . But watch out lest you embarrass yourself.
>
> (*Méditations chrétiennes et métaphysiques* IV.4, OCM 10:47–48)

Malebranche tries to convince his imaginary interlocutor of the absurdity of taking matter to be equipped with a real power by pointing out that this would require matter or bodies to have some knowledge of their effects. This presupposes that something endowed with the real power to bring *z* about must have some cognition or knowledge of *z*.

Given the Cartesio-Armstrongian argument for the epistemic condition for causation (EC) is valid and that Malebranche accepts its premises, Malebranche has good—or at least philosophically comprehensible—reason to endorse it and to take it as a starting point for his epistemic argument for occasionalism. So, not only does Malebranche rely on the epistemic condition for causation (EC) in one of his recurring arguments for occasionalism, but he is also entitled to do so, as his commitment to the Cartesio-Armstrongian argument provides him with a non-circular justification for it.

3. Enacting Occasionalism: God's Laws and Foreknowledge

Suppose we are convinced by Malebranche's arguments for occasionalism and now hold that a "natural cause is . . . not a real and true, but only an occasional cause, which determines the Author of nature to act in such and such a way, in such and such a situation" (*SAT* 6.2.3, LO 448; OCM 2:313). This view is not completely clear yet as it stands because it leaves at least one crucial question undetermined: how is it that natural causes *determine* God to act in such and such a way in such and such a situation? As they lack any real power, natural causes certainly do not determine God in a causal way. But how do natural causes determine God instead? The following passage is revealing on this score:

> God . . . produces all the effects that we see happening, because He also willed certain laws according to which motion is communicated upon the collision of bodies; and because these laws are efficacious, they act, whereas bodies cannot act. There are therefore no forces, powers or true causes in the material world.
>
> (*SAT* 6.2.3, LO 449; OCM 2:314)

As becomes plain here, if finite things can do anything at all, according to Malebranche, they can do so only in virtue of certain efficacious laws in which they figure. And this provides an answer to the question raised above: finite things determine God to act insofar as they figure in his

efficacious laws. This might serve as a first pass, but it cries out for further explication. In particular, we need to settle the following two questions: (1) what are these efficacious laws of which Malebranche speaks? And (2) how is it that finite things come to figure in these laws? It is my aim in this section to answer these two questions in turn.

Let me start with question (1): what are (efficacious) laws for Malebranche? In response to Arnauld, Malebranche explained that "the general laws of nature . . . are general practical volitions [of God]" (*Réponse aux Réflexions* I.I.3, OCM 8:652). By qualifying laws of nature as general and practical volitions of God, Malebranche distinguishes them from both particular and simple volitions. How are these distinctions to be understood? As far as the first distinction between general and particular divine volitions is concerned, Malebranche wrote:

> I say that God acts by general volitions, when he acts in consequence of general laws which he has established. For example, I say that God acts in me by general volitions when he makes me feel pain at the time I am pricked; because in consequence of the general and efficacious laws of the union of the soul and the body which he has established, he makes me feel pain when my body is ill-disposed. . . . I say on the contrary that God acts by particular wills when the efficacy of his will is not determined at all by some general law to produce some effect.
>
> (*TNG*, R 195; OCM 5:147–48)

General divine volitions are volitions that God forms on the basis of "general laws which he has established," that is, volitions based on universal and conditional decrees of the form "whenever *F* is the case, *G* shall be the case." Particular volitions, by contrast, are not formed on the basis of such universal and conditional decrees, but on the basis of singular, categorical decrees of the form "*H* shall be the case." This is confirmed by Malebranche's identification of events occurring due to particular volitions with miracles, of which God's creation is the most striking example.[13] Such events are precisely unnatural or miraculous to the extent that God did not want them as law-governed consequences of certain preceding events (indeed, there was no event preceding God's creation of the initial state of the world), but as singular exceptions to his general decrees as to what shall follow what.

For the purpose of this chapter, we can content ourselves with the offered explication of Malebranche's distinction between general and particular volitions in terms of whether or not they are based on universal and conditional decrees of the form "whenever *F* is the case, *G* shall be the case." In particular, we need not delve into the complicated debate—going back to Arnauld and Leibniz—about how these different types of volitions translate into God's actions.[14] As we are trying to understand

Malebranche's characterization of (efficacious) laws of nature as general and practical volitions of God, we can specify this characterization in light of the offered explication by noting that the laws of nature are in fact the contents (and not the acts) of God's general volitions: laws of nature, for Malebranche, are God's universal and conditional decrees, on which his general volitions are based and on account of which these volitions qualify as general.

What about Malebranche's qualification of the laws of nature as (the content of) God's general *practical* volitions? This qualification is important in order to understand Malebranche's frequent (and already encountered) talk of "efficacious" laws of nature. Here is how Malebranche explains his distinction between practical and simple divine volitions:

> [S]imply willing and willing to make are not the same in God. But willing to make and making are the same in God. When we say that all volitions in God are efficacious, we speak of practical volitions. For God wants things that he doesn't make: though there is some reason to want them, there is not enough to want them to make. God wants salvation for all humans, but God doesn't want to make everything that is necessary to save all.
>
> (*Réponse aux Réflexions* I.I.4, OCM 8:655)

Practical volitions, Malebranche tells us, are efficacious volitions—they are volitions to make something, and as such, they involve an intention for realization. Practical volitions are acts of will that God puts into action, as it were. And since God is omnipotent, there is nothing which could prevent him from achieving what he practically wills, and so his practical volitions are realized by metaphysical necessity or, as Malebranche puts it: "willing to make and making are the same in God." Simple divine volitions, by contrast, do not involve such an intention for realization. They are mere pro-attitudes on God's part, which he does not intend to realize. We are well aware of such pro-attitudes that Malebranche describes in terms of "simple volitions." Consider cases where you refrain from doing what you would really like to do because of certain obligations, such as declining a spontaneous invitation because you have promised to write a report. In fact, Malebranche's own example given in the quotation above is of this sort: due to his benevolence, God would like to save every human being and has, in this sense, a simple volition or pro-attitude towards saving all humans. At the same time, Malebranche holds (for reasons that we will briefly touch upon below) that God is by his nature bound to act in the simplest ways and is thereby prevented from realizing his simple volition to save all humans. Ultimately, then, God practically wills only those humans to be saved whom he can save without violating his fundamental obligations grounded in his nature.[15]

This leaves us with the following account of Malebranche's conception of (efficacious) laws of nature: as the contents of God's general practical volitions, they are nothing but universal and conditional decrees of the form "whenever *F* is the case, *G* shall be the case" that God has decided to put into action. They are efficacious to the extent that due to his omnipotence, whatever God decides to realize is, by this very fact, realized. This account of Malebranchean laws of nature also affords us a more precise answer to the question raised at the outset of this section: how do natural occurrences *determine* God to become active and to produce such and such an effect? We can now see that they do so in virtue of satisfying the antecedent conditions of God's general decrees that underlie the general volitions which he has decided to realize. Or, to illustrate this with a concrete example: my will to raise my arm determines God to raise my arm on account of satisfying the antecedent condition of his general volition to raise a (non-paralyzed or otherwise constrained) human being's arm if this human wants to raise his or her arm.

All this leaves the second question raised above untouched: (2) how is it that finite things come to figure in laws of nature? In line with our newly gained understanding of Malebranche's conception of laws of nature, we can put this question both more precisely and more concretely by asking: on account of what does a certain state *F* (such as a modification of my body) come to figure in a law according to which God takes *F* as an occasion to cause some state *G* (such as pain or pleasure in my soul)? Putting the question in this way makes its answer almost obvious: *F*s that figure in a law of the form "whenever *F* then *G*" do so because God has chosen this law; that is, because he decided to enact his decree "whenever *F* then *G*" by a practical volition. But you might want to ask further: how or by what criteria does God choose his laws of nature—on what basis does he form his general volitions? To this question, Malebranche has a fairly explicit answer:

> An excellent workman should proportion his action to his work; he does not accomplish by quite complex means that which he can execute by simpler ones, he does not act without an end, and never makes useless efforts. From this one must conclude that God, discovering in the infinite treasures of his wisdom an infinity of possible worlds (as the necessary consequences of the laws of motion which he can establish), determines himself to create that world which could have been produced and preserved by the simplest laws, and which ought to be the most perfect, with respect to the simplicity of the ways necessary to its production or to its conservation.
>
> (*TNG* I.XIII, R 116; OCM 5:28)

In this passage, Malebranche explains what we have already seen above: God, for Malebranche, cannot act arbitrarily, but he is committed to his

nature or perfection, which binds him to proportion his actions to his work and thereby to choose the simplest ways or laws in order to realize his end. But what is the end or goal of God's actions? Malebranche is clear that being perfect, God cannot but act for the sake of the best, and so "God being able to act only for his own glory, and being able to find it only in himself, cannot have had any other plan in the creation of the world than the establishment of his Church," headed by Jesus Christ, who—as God's son and the third hypostasis of the Trinity—is again identical to God (*TNG* I.I, R 112; OCM 5:12). Malebranche's God then chooses the laws of nature in such a way that in conjunction with the initial state of creation, they lead the world to unfold in such a way that it eventually results in the establishment of the Catholic Church.

Despite its clear and simple goal, God's creation is rich and complex. In Malebranche's view, it requires God to establish several orders, structured by different sets of laws. As Malebranche explains in his *Dialogues on Metaphysics and Religion* (XIII.9), there are five groups of hierarchically structured laws:

1. Laws of the communication of motion.
2. Laws of the union of the soul and the body.
3. Laws of the soul's union with God.
4. Laws that give angels power over bodies of inferior substances.
5. Laws that give Jesus the power to distribute temporal goods and grace.

These classes of laws are mutually distinguished in that all laws of a distinct class have distinct types of antecedent conditions that God will take as occasions to bring about specific types of effects. So, laws of the first class take impacts of bodies as antecedent conditions and specify their subsequent motions in the consequent. Laws of the second class take certain modifications of the soul and the human body as antecedent conditions and specify other modifications of them as their effects. Laws of the third class take creaturely acts of attention as conditions for God to reveal corresponding ideas to us. Laws of the fourth class take the practical desires of angels as antecedent conditions or occasions to effect changes in bodies by which they can tempt or defend us. Finally, laws of the fifth class specify "the various movements of the blessed soul of Jesus" as occasions for God to spread his grace (*Dialogues* XIII.9, JS 253; OCM 12:320). Their hierarchical structure is reflected by the fact that God fixes the higher laws first and chooses subordinate laws accordingly. This ensures that the different orders of nature, which are established by these different classes of laws, do not come in conflict with each other; it guarantees, for instance, that mind–body interactions—fixed by the second class of laws—do not violate the laws of the communication of motion among bodies as determined by the first class of laws.[16]

The nomological structure of creation, as Malebranche envisages it, is thus impressively complex. Also, God's choice of the laws of nature—qua the simplest ways to realize his ends—requires enormous intellectual powers on his part. How then, one wonders, does God know all possible laws—or ways of connecting different states—from which he chooses the simplest to realize the ends of his creation? Malebranche's answer to this question is ready at hand:

> [B]efore this first impression [of motion] God clearly knew all its consequences and all the combinations of its consequences, not only all the physical combinations, but all the combinations of physics together with morality, and all the combinations of the natural and the supernatural. He compared together all these consequences with all the consequences of the possible combinations, on all kinds of assumptions. He compared, I say, everything in the plan of making the most excellent work by means of the wisest and most divine ways. He neglected nothing in His action that could be made to bear the character of His attributes; and it is here that He is determined unhesitatingly to take that first step.
>
> (*Dialogues* X.17, JS 191; OCM 12:248)

Before his creation, Malebranche's God considers, for all initial contributions of states F_i, all possible general ways of connecting these states F_i with succeeding states G_i and their consequences. These possible general ways of connecting different states are the possible laws, which he compares in order to select the simplest means of realizing his plans.

Needless to say, to conceive all possible general ways of connecting possible states, think through their manifold consequences, and finally compare all of them is a very difficult task. It is further complicated by the fact that God also wants to include rational creatures in his creation. This is because according to Malebranche, rational beings are endowed with freedom by which they can determine their will to particular goods and thereby give God the occasion to reveal certain ideas to them or bring about certain bodily motions (such acts of creaturely free will figure in all antecedent conditions of the laws of type 2 to 5 listed above). Hence, in order to calculate the course of the world under a certain set of laws, God also needs to know the free acts of his possible creatures, and this knowledge cannot simply be deduced from his knowledge of the circumstances of the deciding rational creatures, because for Malebranche, freedom includes a (non-conditional) ability to do otherwise, the exercise of which is completely up to the rational agent. Or, as Malebranche puts it, "the principle of our freedom is that . . . we can always think of the true good or of goods other than those of which we are actually thinking" (*Elucidation* I, LO 548–49; OCM 3:20).[17] So, in order for God to include rational creatures in his creation, who can make free decisions

that figure in certain laws, he needs to know how these possible rational creatures would freely act under any possible circumstance. And to know *this* sounds like an impossible task, even for God. Malebranche, however, was optimistic:

> God employs free causes as readily as necessary causes for the execution of His plans. . . . God does not blindly form His wise plans. Before forming them, speaking humanly, He compares all possible works with all possible means of executing them. . . . God must derive an infinite glory from the wisdom of His conduct; but His glory detracts nothing from that of the free causes to whom He communicates His power without depriving them of their freedom. God gives them part of the glory of His work and of theirs, by letting them act freely according to their nature; and in this way He augments His own. For it is infinitely more difficult to execute His plans securely through free causes than through necessary causes.
>
> (*Dialogues* XII.18 JS 237; OCM 12:301)

For Malebranche, the infinite difficulty arising from God's inclusion of free creatures in his plans for creation only bespeaks his perfection and enhances his glory. What is peculiar—and crucial—about God's capacity to foresee the free actions of his (possible) creatures is that this foreknowledge does not deprive them of their freedom.

In order to see how God's foreknowledge is supposed to be compatible with freedom, it is worth pausing a moment over the precise structure of his peculiar foreknowledge of free actions, which is required for his establishment of the higher laws of nature (which determine the consequences of free choices). This foreknowledge is peculiar in that it differs from other types of knowledge usually attributed to God. On the one hand, God's knowledge of the free actions of possible creatures precedes his creation and his choice of laws and is thereby pre-volitional. By this, it is distinguished from "free knowledge," which God has on reflection of his own free acts of will. (Through this type of knowledge, God knows, for instance, that the world actually began with a big bang.) On the other hand, God's knowledge of the free actions of possible creatures is also different from his other pre-volitional knowledge, which is constituted by his "natural knowledge" derived from the essences of (possible) things and which is concerned with eternal and necessary truths. (Through this type of knowledge, God knows, for instance, that the sum of the angles of a Euclidean triangle is equal to two right angles.) God's knowledge of the free actions of possible creatures differs from such natural knowledge in that it is (like his free knowledge) concerned with contingent states of affairs. Indeed, the performance of a free action is a paradigm of such a state, as free actions result from a (non-conditional) ability to do otherwise. It seems therefore that foreknowledge of the free actions

of possible creatures, which Malebranche's God must have in order to determine the laws involving creaturely free actions, must be a kind of "middle knowledge" as defended by the late scholastic Jesuit Luis de Molina (1535–1600): a kind of knowledge that is in-between (as it were) God's pre-volitional natural knowledge of metaphysical necessities on the one hand and his post-volitional free knowledge of contingencies on the other.[18] Now, this foreknowledge of (possible) free actions is compatible with their freedom to the extent that it reflects rather than determines them: it is because a rational creature *S* would freely choose *A* in circumstances *C* that God knows that a created *S* will choose *A* in *C*, and not vice versa.

Note, however, that Malebranche never used the Molinist term "middle knowledge" (*scientia media*), and even denies having read Molina in the first place (cf. OCM 7:415f.). But this does not mean too much. After Molina had sparked the far-reaching *De auxiliis* debate between Jesuits and Dominicans about the compatibility of God's concurrence and grace with creaturely freedom (which was ended by a papal decree from Pope Clement VIII in 1607), every seventeenth-century Catholic theologian concerned with questions of grace was familiar with Molina's concept of middle knowledge. And in fact, even leading theologians of this time like Francisco Suárez, who adopted a Molinist position with respect to God's foreknowledge of free actions, did not consistently talk about God's middle knowledge, but often referred to it as "conditional foreknowledge" (as Suárez does in his *Metaphysical Disputations* 22.4, for instance). And Malebranche (who explicitly cites Suárez's *Disputation* 22.4 in his *Elucidation* XV [LO 679; OCM 3:242]) seems to follow this convention when he simply talks about God foreseeing all consequences on all kinds of hypotheses or conditions:

> Before giving matter that initial impression of motion . . ., He clearly knew all the consequences of all possible combinations of the physical and the moral, on all kinds of hypotheses. He foresaw that under particular circumstances man would sin and that his sin would be communicated to his entire posterity as a consequence of the laws of the union of the soul and the body.
>
> (*Dialogues* XI.10, JS 208, OCM 12:268)

The kind of foreknowledge that Malebranche has in mind here is a knowledge of conditionals of freedom that is often considered to be distinctive to Molinism:[19] even before creation, God knows whether a possible individual will sin under given circumstances. In other words, for all possible rational creatures *S* and all possible circumstances *C*, Malebranche's God knows how *S* would freely act in *C*.

There is no doubt for Malebranche, then, *that* God possesses knowledge of conditionals of freedom, which is required for his choice among

the higher laws of nature and the course of worlds with rational creatures. At the same time, Malebranche is clear that we cannot know *how* God comes to know these conditionals. This might be disappointing from a philosophical point of view. But for Malebranche, there is a principled reason for our ignorance: it is due to the fact that we do not have an idea of our soul that reveals our essence, as he famously argued in his *Search after Truth* 3.2.7 (LO 237–39; OCM 1:451–55) and *Elucidation* XI (LO 633–38; OCM 3:163–71).[20] On account of this, Malebranche did not even attempt to explain how God foresees our future free acts, but accepted it as an article of faith:

> I do not pretend to explain how God sees the free and non-necessitated determinations of our will with full certainty, nor do I respond to all the difficulties that one can raise against the attribute of being an examiner of hearts, which Catholics have never refused to attribute to God.
>
> (*Prémotion physique* VIII; OCM 16:31)

Being a convinced Catholic, Malebranche always had the option of simply taking refuge to faith. Yet he is not required to do so when it comes to defending his view that God has pre-volitional knowledge of our free actions (and the potential free actions of all potential creatures). Malebranche could at least argue that we need to attribute this kind of knowledge to God, since this is a precondition for God's establishment of the laws of nature of a world populated by rational creatures on the basis of which he can figure as the (only) true cause of natural events.

So, even if we cannot understand *how* God knows all the things he needs to know in order to establish the laws of nature, we can understand *that* establishing these laws—and thereby establishing occasional causes—requires much more cognition on God's part than one might have originally expected.

4. Conclusion: Causation and Cognition in Malebranche

Malebranche is and was a famous proponent of an occasionalist theory of causation according to which God is the only true cause while all "natural causes" are but occasions for God to actually bring about their ascribed effects. According to Malebranche's analysis, then, what we usually conceive as one single relation—the relation of natural causation—in fact consists of two relations: (i) the relation of God taking something as an occasion (for bringing something about) and (ii) the relation of God bringing something about (on the occasion of something). As has hopefully become clear in the course of the two preceding sections, according to Malebranche, both relations are crucially dependent on (divine) cognition.

With regard to the first relation (i), I argued in the previous section that God's taking something as an occasion for bringing something about requires him to recognize something *as* an occasion for acting, which in turn depends on a surprisingly large amount of information, comprising detailed knowledge about the course of all possible worlds. This is because what counts as an occasion for God to bring something about depends on his general practical volitions (which have a universal and conditional content of the form "whenever *F*, then *G*"), which Malebranche identifies with the laws of nature. In order to form these general volitions, God needs the aforementioned knowledge of all possible worlds, which is constituted by his knowledge of all possible ways of connecting all possible initial states of the universe with possible successor states and his knowledge of how possible rational creatures would freely act under any possible circumstance. Through canvassing these infinite possibilities and combinations, God determines the initial state of the universe and the ways of uniformly connecting them with successor states by which he pursues the end of his creation—the establishment of a Church, headed by Jesus Christ—in the simplest way. In line with his nature, that is, his perfection and simplicity, God eventually chooses to create the universe in the determined simplest way (in proportion to its end). In so doing, he resolves to make the relevant laws of nature the contents of his general practical volitions, on the basis of which he will take certain natural events as occasions for bringing about subsequent events (as specified by the determined laws of nature). Thus, God's capacity to figure as the true cause of natural effects by taking other natural events as occasions for bringing them about requires him to have comprehensive foreknowledge of the entire course of the world, which he is going to create.[21]

The second relation (ii) of God bringing something about (on the occasion of something) that is implicated by Malebranche's occasionalism requires knowledge as well. In fact, Malebranche draws on what I have called the epistemic condition for causation (EC) in order to defend his occasionalism in the first place. According to this condition, *x* can only be a true cause of *y* if *x* knows *y* and all causal intermediaries of *y*—and this condition figures crucially in Malebranche's epistemic argument for occasionalism according to which only God qualifies as a true cause since only God has the infinite epistemic capacities required for causing (bodily) effects. Given that Malebranche's epistemic argument is—next to his argument from causation as necessary connection and his argument from causation as continuous creation—one of his main arguments for occasionalism, its central premise, the epistemic condition for causation (EC), is well known in the secondary literature. At the same time, commentators were puzzled by this startling condition and have often confined themselves to providing a mere historical account of it. As I have argued, we can at least make some progress in making philosophical sense of this

condition by putting it in the context of a reflection about the nature of real powers or dispositions, which have traditionally been considered the ultimate sources of true causation. Such powers, we have seen, have the peculiarity of being internally directed towards their possible manifestations (e.g., the gravity of a heavy body internally directs it towards falling towards the center of the earth, while the fragility of a fragile glass internally directs it towards breaking). And as philosophers as diverse as René Descartes and David Armstrong have observed, this peculiarity shares crucial similarities with the intentionality of mental states, which are also internally directed towards certain objects. If one is reluctant to accept this intrinsic directedness of powers towards their possible manifestations as an inexplicable feature of causal powers, acknowledging these similarities can make it tempting to see (real) powers and intentional states as intimately connected—a step which Descartes, Armstrong, and others explicitly took, arguing that only things that can have some knowledge or cognition of *x* can have a real power to bring *x* about. On the basis of this consideration, we can thus articulate a valid argument—the Cartesio-Armstrongian argument—for the epistemic condition for causation (EC). And even though Malebranche never gave an explicit argument for (EC), there is textual evidence that he is committed to all the premises of the Cartesio-Armstrongian argument. Accordingly, Malebranche's acceptance of the *prima facie* baffling view that a true cause of *y* must have some knowledge of *y* need no longer be conceived as a mere oddity in the history of philosophy. It can rather be seen as the conclusion of a reasonable philosophical argument from someone asking for an account of a power's peculiar internal directedness. An argument, as we saw, which Malebranche would have been happy to accept.[22]

Notes

1. See, amongst others, Sangiacomo 2017; Fisher 2011; Cunning 2008; Lee 2008.
2. Discussions can be found in Nadler 2000; Scribano 2011; Ott 2008, 2009, 81–101.
3. Further evidence for Malebranche's endorsement of the epistemic condition for causation (EC) is to be found in his *Search after Truth* 6.2.3, LO 449–50; OCM 2:315, and in his *Dialogues on Metaphysics and Religion* VII.14, JS 121–22; OCM 12:167.
4. Varieties of this argument are to be found throughout Malebranche's work. Apart from the cited passages from his *Elucidations* XV and his *Méditations Chrétiennes* V.11, it can be found in his *Search after Truth* 6.2.3, LO 449–50; OCM 2:315, his *Conversations Chrétiennes* (OCM 4:15–16), and in his *Dialogues on Metaphysics and Religion* VII.14 (JS 121f.; OCM 12:167–68).
5. Steven Nadler 2000, 124–25, cites Arnold Geulincx as a slightly earlier contemporary of Malebranche who endorsed (EC) explicitly and, without maintaining any direct historical influence, he also refers to medieval Arabic theologians who seem to have flirted with (EC). Emanuela Scribano 2011, by contrast, suggests a fascinating trajectory leading from Galen via Campanella

to Pierre Chanet, whom she identifies as the most probable source of Malebranche's (EC).

6. My suggestion for making philosophical sense of Malebranche's epistemic condition for causation is deeply indebted to Ott 2008, 2009, 81–101.
7. As Place 1996 convincingly pointed out, there are even more similarities between intentional and dispositional states. It is contested, however, whether this similarity warrants Place's conclusion that intentionality is the mark of the dispositional (as opposed to the mental); see Mumford 1999.
8. Note that not all philosophers deem it necessary to provide a reductive account of the internal directedness of powers. Most notably, Aristotelian scholastics were happy to accept that all powers exhibit a primitive inclination towards their effects and explicitly distinguished these inclinations as *natural appetites* from *animal* or *cognitive* appetites, which require some cognition of their intended objects; in place of many others, see Thomas Aquinas, *Summa Theologiae* I, q. 80, art. 1. Among temporary metaphysicians, Mumford and Anjum 2011, 175–94, argue extensively that causes "dispose towards their effects" in an irreducible way. (I am grateful to Dominik Perler for pressing me on this point.)
9. In particular, such an identification ignores crucial dissimilarities between dispositional and intentional states. A striking one consists in the fact that unlike the ascription of dispositional states, the ascription of intentional states is subject to holistic rationality constraints; see Schmid 2014.
10. To be sure, it is not clear whether Descartes' consideration really turns on an identification of powers with intentional states, as suggested by Armstrong, or rather on the view that the power to bring *x* about requires the capacity to think about (bringing about) *x*—perhaps because he thinks that one can only have the power to bring *x* about if one is able to exercise this power, which presupposes the capacity to think about (bringing about) *x*, as Thomas Reid argued (see his *Essays on the Active Powers of Man* I. 5, ed. Haakonssen and Harris: 29, and Yaffe 2004, 14–37, for a discussion).
11. As is evident from the passage quoted above, Armstrong denied the existence of real powers or dispositions, and so he does not even have the resources to analyze causation in terms of powers. He opted for a nomological theory of causation, according to which "[i]t can be given an ontological analysis [. . .] as the instantiation of a law of nature" (Armstrong 1997, 202).
12. Descartes' *Letter to Arnauld*, July 29, 1648, CSMK 355–56, AT V 221–22. Whether Descartes was consistent in denying (C1), and for that matter (EC), or on what grounds he could deny them, is another question, which I will not pursue here.
13. See his *Réponse aux Réflexions* II.I., OCM 8:696, his *TNG* I. 59, R 137; OCM 5:63, and E1.13, R 206; OCM 5:160. For Malebranche's discussion of God's creation (of the initial state of the world), see his *Réponse aux Réflexions* III.1, OCM 8:759.
14. More precisely, the question concerns God's application of general volitions: while some commentators—such as Black 1997; Schmaltz 2003; Jolley 2013—hold that for God to bring about natural effects, it is enough that he forms general volitions, which will automatically yield to the production of these effects once their antecedent conditions are satisfied, others—most notably Nadler 1993 and Ott 2009, 102–9—argue that God brings about each natural effect on the basis of discrete volitions, which he forms based on his general volitions and his recognition that its antecedent conditions are satisfied.
15. This example draws on Malebranche's theory of theodicy, for a discussion of which see Black 1997. See Adams 2013, 73–74, for a helpful account of

Malebranche's distinction between simple and practical volitions against its scholastic background.

16. For a discussion of Malebranche's different sets of laws, see Garber and Wilson 1998, 856–59.
17. That the ability to do otherwise required for freedom is non-conditional (in the sense that it is not be the ability to do otherwise *if* the world were somewhat different) is evident from Malebranche's rejection of such a conditional conception of the ability to do otherwise in his *Elucidation* XII (LO 641–42; OCM 3:176–78).
18. See his [*Liberi Arbitrii cum Gratiae Donis, Divina Praescientia, Providentia, Praedestinatione et Reprobatione*] *Concordia*, part IV, and Freddoso's excellent introduction in his English translation of this work, published under the title *On Divine Foreknowledge*.
19. See Perszyk 2013 as an entry point into the contemporary debate on Molinism.
20. See his *Prémotion physique* VIII, OCM 16:24, and Schmaltz 1996, 35–43, for a discussion of Malebranche's startling view that we lack an idea of our soul.
21. Here, the different positions on how God's practical general volitions translate into his actions (mentioned in note 14) differ with respect to the extent to which God exploits his comprehensive foreknowledge. In the view that his general volitions do their causal work by themselves, God need only rely on his foreknowledge to form these volitions. Once he has done so, his general volitions will automatically fire, as it were, as soon as their antecedents are satisfied. In the view that God needs to constantly apply his general volitions to cause particular events upon the occurrence of other particular events that satisfy the antecedent conditions of his general volitions, God additionally needs to rely on his comprehensive foreknowledge in order to know when the world calls for his action. But since God can combine his different forms of foreknowledge, there is no problem for him to know this: due to his knowledge of conditionals of freedom, God knows how the rational creatures he is going to create would behave in all possible circumstances, and while his particular volitions provide him with knowledge of the initial states of the universe, his general volitions allow him to know the (actual) laws of nature and the subsequent events to which they will yield.
22. This chapter has greatly profited from discussions with and comments by Sebastian Bender, Daniel Garber, Dominik Perler, José María Sánchez de León Serrano, Anik Waldow, and Matthew Wurst. I am also grateful to Katharine Handel for her rigorous proofreading and her excellent stylistic suggestions and the generous support of MCAS: Jewish Scepticism (DFG-FOR 2311). I want to thank them here.

Literature

Adams, Robert M. "Malebranche's Causal Concepts." In *The Divine Order, the Human Order, and the Order of Nature*, edited by Eric Watkins, 67–104. Oxford: Oxford University Press, 2013.

Aquinas, Thomas. *Summa Theologiae*. Edited by P. Caramello. Turin and Rome: Marietti, 1952.

Armstrong, David M. *A World of States of Affairs*. Cambridge: Cambridge University Press, 1997.

Black, Andrew. "Malebranche's Theodicy." *Journal of the History of Philosophy* 35, no. 1 (1997): 27–44.

Cunning, David. "Malebranche and Occasional Causes." *Philosophy Compass* 3, no. 3 (2008): 471–90.

Descartes, René. *Oeuvres de Descartes*. Edited by Charles Adam and Paul Tannery. Paris: Vrin, 1983–1991. [= AT].

———. *Philosophical Writings of Descartes*. Edited and translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, vols. 1–2, and Anthony Kenny, vol. 3. Cambridge and New York: Cambridge University Press, 1984–1991. [= CSM(K)].

Fisher, A. R. J. "Causal and Logical Necessity in Malebranche's Occasionalism." *Canadian Journal of Philosophy* 41, no. 4 (2011): 523–48.

Garber, Daniel, and Margaret Wilson. "Mind-Body Problems." In *The Cambridge History of Seventeenth-Century Philosophy*, edited by Daniel Garber and Michael Ayers, vol. 1, 833–67. Cambridge: Cambridge University Press, 1998.

Jolley, Nicolas. "Occasionalism and Efficacious Laws in Malebranche." In *Causality and Mind. Essays in Early Modern Philosophy*, 92–104. Oxford: Oxford University Press, 2013.

Lee, Sukjae. "Necessary Connections and Continuous Creation: Malebranche's Two Arguments for Occasionalism." *Journal of the History of Philosophy* 46, no. 4 (2008): 539–66.

Malebranche, Nicolas. *Oeuvres complètes*. Edited by G. Rodis-Lewis. Paris: Vrin, 1976. [= OCM].

———. *Treatise on Nature and Grace*. Translated by Patrick Riley. Oxford: Clarendon Press, 1992. [= TNG; R].

———. *Dialogues on Metaphysics and on Religion*. Edited by Nicholas Jolley and translated by David Scott. Cambridge: Cambridge University Press, 1997. [= JS].

———. *The Search After Truth*. Translated by Thomas M. Lennon and Paul J. Olscamp. Cambridge: Cambridge University Press, 1997. [= SAT; LO].

Molina, Luis de. *On Divine Foreknowledge (Part IV of the* Concordia). Translated with an introduction and commentary by Alfred J. Freddoso. Ithaca: Cornell University Press, 1988.

Mumford, Stephen. "Intentionality and the Physical: A New Theory of Disposition Ascription." *The Philosophical Quarterly* 49, no. 195 (1999): 215–25.

Mumford, Stephen, and Rani Lill Anjum. *Getting Causes from Powers*. Oxford: Oxford University Press, 2011.

Nadler, Steven. "Occasionalism and the General Will in Malebranche." *Journal of the History of Philosophy* 31, no. 1 (1993): 31–47.

———. "Malebranche on Causation." In *The Cambridge Companion to Malebranche*, edited by Steven Nadler, 112–38. Cambridge: Cambridge University Press, 2000.

Ott, Walter. "Causation, Intentionality, and the Case for Occasionalism." *Archiv für Geschichte der Philosophie* 90, no. 2 (2008): 165–87.

———. *Causation and Laws of Nature in Early Modern Philosophy*. Oxford: Oxford University Press, 2009.

Perszyk, Ken. "Recent Work on Molinism." *Philosophy Compass* 8 (2013): 755–70.

Place, Ullin T. "Intentionality as the Mark of the Dispositional." *Dialectica* 50, no. 2 (1996): 91–120.

Reid, Thomas. *Essays on the Active Powers of Man*. Edited by Knud Haakonssen and James A. Harris. University Park, PA: Pennsylvania State University Press, 2010.

Sangiacomo, Andrea. "Malebranche's Arguments for Occasionalism in Their Historical Context." *History of Philosophy Quarterly* 34, no. 2 (2017): 133–54.

Schmaltz, Tad. *Malebranche's Theory of the Soul: A Cartesian Interpretation*. Oxford: Oxford University Press, 1996.

———. "Cartesian Causation: Body—Body Interaction, Motion, and Eternal Truths." *Studies in History and Philosophy of Science* 34 (2003): 737–62.

Schmid, Stephan. "Teleologie und Potentialitäten—Gedanken über eine aristotelische Herausforderung." In *Vermögen und Handlung*, edited by A. S. Spann and D. Wehinger, 63–92. Münster: Mentis, 2014.

Scribano, Emanuela. "'*Quod nescis quomodo fiat, id non facis*.' Occasionalism Against Descartes?" *Rinascimento* 51 (2011): 63–86.

Suárez, Francisco. *On Creation, Conservation, and Concurrence: Metaphysical Disputations 20, 21, and 22*. Translated by Alfred Freddoso. South Bend, IN: St. Augustine's Press, 2002.

Yaffe, Gideon. *Manifest Activity: Thomas Reid's Theory of Action*. Oxford: Oxford University Press, 2004.

5 Ralph Cudworth

Plastic Nature, Cognition, and the Cognizable World

Sarah Hutton

"he that asserts a-*Plastick Nature*, asserts *Mental Causality* in the World."
—Cudworth (1678, 155)

1. Introduction

Among the better known facts about the philosophy of Ralph Cudworth are that he was the proponent of epistemological nativism, and of a causal scheme which retained final causality—his hypothesis of "Plastic Nature," by which Cudworth sought to account for design and purpose in the natural world. He conceived Plastic Nature as an intermediary agency between God and the natural world, the function of which is to maintain the day-to-day operations of the physical universe and to regulate life processes in an orderly and harmonious manner according to divine intention. He formulated both his epistemology and his concept of Plastic Nature in response to new mechanistic philosophies of his time, and they are distinctive for his situating them within a Platonist metaphysics where mind is considered causal, and where both Plastic Nature and the human mind are conceived as copies of the divine mind. In this chapter I examine whether Plastic Nature can be considered in any way the cause of cognition. I argue that, since Cudworth holds that cognition is mind-generated, Plastic Nature does not have a direct causal role in human cognition. However, as the manifestation of divine wisdom in nature and the principal means for sustaining order and purpose in the created world, Plastic Nature has a key role among causal *relata* for guaranteeing the intelligibility of the physical world.

The chapter is subdivided into five sections. I shall first contextualize Cudworth's ideas on "mental causality" in relation to seventeenth-century causal theories, showing how Cudworth framed his Plastic Nature hypothesis as a response to Descartes. I then discuss Plastic Nature as a form of "mental causality." There follow some considerations of the cognitive status of Plastic Nature as a prelude to the fourth section on cognition in Cudworth's epistemology. I conclude by arguing that it is

by virtue of the operations of Plastic Nature that the external world is cognizable.

Before all else, a word on sources: Cudworth's most concentrated discussion of epistemology is contained in his posthumous *Treatise concerning Eternal and Immutable Morality* (1730).[1] His main published work, *The True Intellectual System of the Universe* (1678), which is usually treated as chiefly a learned antidote against atheism reliant largely on *consensus gentium* arguments, also has a lot to say about epistemology and causality. This contains his "Digression concerning the Plastick Life of Nature" (Cudworth 1678, 147–82). There is more on epistemology in his unpublished manuscripts, "Of Liberty and Necessity."[2] But in this chapter I shall confine my remarks to his *True Intellectual System* and *Treatise concerning Eternal and Immutable Morality*.

2. Cudworth, Cartesianism, and Seventeenth-Century Causal Theories

Cudworth's writings on causality and epistemology can seem like an exotic throwback to premodern times. But that is not quite fair. It is true that the humanist in him is always reaching back to philosophical precedents in ancient philosophy, but his interests and concerns were very much of his time. The antique dress in which he presents his views belies the fact that he was up-to-date with the new science and philosophy of his day. Harvey, Galileo's discoveries, microscopes all figure in his arguments. Cudworth was concerned with the same problems as other thinkers of his time, and he contributed to the developments in early modern philosophy which lead to the sidelining of scholasticism and the replacement of Aristotle's fourfold causal scheme (efficient, formal, material, final) and Aristotelian conceptions of the soul. Cudworth fits the "standard narrative" about the decline of Aristotelianism with the rise of modern philosophy, to the extent that he repudiated scholastic Aristotelianism, rejected the scholastic doctrine of forms and qualities and scholastic models of mind and soul. The alternatives which he proposed contain echoes of Descartes and anticipations of Locke and Leibniz. However, although he had great respect for Descartes as "an Acute Philosopher" (Cudworth 1678, 646), like many of Descartes' contemporaries, he saw problems with the new mechanistic conception of body and mechanical models of causation which repudiated final causality. He saw that the dismantling of the old Aristotelian causal framework left a gap which the new philosophy did not fill satisfactorily.[3] In particular, Cudworth had concerns about the reduction of causation to efficient causality, and the materialist implications of machine-models of mind implied by Descartes' attenuated account of the soul as *res cogitans*. These are shaping concerns for both his causal theory and epistemology.

Cudworth's engagement with Cartesianism was complex and extensive,[4] and this is not the place to elaborate on it. But I shall just briefly indicate some relevant aspects. To begin with the positive. He admired Cartesianism as a *system* of philosophy, which combined physics with metaphysics, and posited both corporeal and incorporeal substance:

> acknowledging besides Extended Substance and Corporeal Atoms, another Cogitative Incorporeal Substance, and joyning Metaphysicks or Theology, together with Physiology, to make up one entire System of Philosophy.
>
> (Cudworth 1678, 175)

He agreed on the Cartesian distinction between mind and body as a distinction between *res cogitans* and *res extensa*. Like Descartes, he held that the rational mind is conscious of its thoughts, and that thinking includes sense perception and imagination. He also held that we know by means of ideas, and that clear and distinct perception is the criterion of epistemological certainty ("the Essence of Truth in *Universal Abstract things*, is nothing but *Clear Perceptibility*," Cudworth 1678, 718). He also adopted a Cartesian account of sense perception. He argued that there are no real qualities in objects; that sensations are impressions on our senses which we interpret, rather as we "see" in the dark with the aid of a stick (Cudworth 1996, 50). Sensation, for Cudworth, as for Descartes, is a "passion" of the soul, at best a confused perception (Cudworth 1996, 85).

Above all Cudworth was attracted by Descartes' physics. He saw Descartes as the reviver of an ancient atomist physics, purer than the Epicurean variety.[5] An advantage of this "atomical philosophy" is that it eschewed spurious forms of causal explanation, in particular the scholastic apparatus of substantial forms and qualities. According to Cudworth the "true Notion of Body" is merely of inert mass ("nothing but *Resisting Bulk*, devoid of all manner of *Life*," Cudworth 1678, 144). The true atomist philosophy,

> so successfully revived of late by Cartesius, shows distinctly what matter is, and what it can amount unto, namely nothing else but what may be produced from mere magnitude, figure, site, local motion and rest.
>
> (Cudworth 1996, 151)[6]

Cudworth hails Descartes' conception of body for two main reasons: firstly metaphysical. In Cudworth's view, the great recommendation of the "atomical philosophy" revived by Descartes was that it was anti-materialist. If body is inert extension, it is necessary to posit some principle of activity to account for life, movement.[7] Consequently, "whosoever

admits it, and rightly understands it, must needs acknowledge Incorporeal Substance; which is the Absolute Overthrow of Atheism" (Cudworth 1678, Sig. *2v). The other main advantage of Descartes' concept of body is its intelligibility: by accounting for corporeal phenomena in terms of the simple properties that may be apprehended by the mind, namely, size, shape, position, and motion, Descartes' conception of body "renders the Corporeal World Intelligible to us . . . and we cannot clearly and distinctly conceive anything in Bodies else" (Ibid., 49). These defining attributes of extension which constitute the essence of body, are grasped intellectually by the mind, not deduced from sensory input:

> all the ideas of things called artificial or mechanical contain something in them that never came from sense, nor was ever stamped upon the soul from the objects without, which, though it be not merely notional or imaginary, but really belongs to the nature of that thing, yet is no otherwise than intellectually comprehended.
>
> (Cudworth 1996, 92)

Cudworth nevertheless had his qualms about whether Descartes "rightly" understood the natural philosophy which he had revived. Despite Descartes' claim to have accounted for all the phenomena of the natural world, Cudworth charged that Descartes was unable to explain the orderliness and harmony of the cosmos, which he regarded as "the Grandest of all Phaenomena." He attributed Descartes' failure to account for this as an error in his metaphysics—principally his repudiation of final causes.[8] Cartesian physics relies solely on "mechanical" or efficient, and material causation—the chance collision of particles in motion ("*the Necessary Motion of Matter*, only divided into Particles Insensibly small, and turned round in a *Vortex*, without the Guidance or Direction of any *Understanding Nature*" (Cudworth 1678, 175)). From "the fortuitous Motion" of this "*Vortex* or Whirlpool of Matter," Descartes claims to derive "this Frame of things that now is, the exact Organization, and successive Generation of Animals" (Cudworth 1678, 54). Cartesian physics is unable to account for "*The Orderly Regularity and Harmony of the Mundane System*" (Cudworth 1678, 175). A world without final causes, where everything is explained mechanically and materialistically, would be a bleak one, consisting of "nothing else, but a mere Heap of Dust, Fortuitously agitated, or a Dead Cadaverous thing" (Cudworth 1678, 147). Descartes' reductive account of causality also has epistemic consequences: if everything is to be explained by mechanical and material causes, nature becomes unintelligible, devoid of the very elements which may be "intellectually comprehended." What is missing from such "a Dead and Wooden world" (Cudworth 1678, 148) are those "Signatures of Mind and Understanding, Counsel and Wisdom" evident in the orderliness and in the disposition of the parts of the natural world, which may

be grasped by the human mind, and which are the marks of "Mental, and consequently Divine Causality."

Cudworth attributes Descartes' error (he calls it a "miscarriage") in rejecting final causes to his overly reductive view of the soul (mind) as *res cogitans*, where cogitation is restricted to *conscious* thought ("his making the *Essence of Cogitation* to consist in *Express Consciousness*," Cudworth 1678, 175).[9] If the essence of mind is conscious cogitation, as Descartes holds, it cannot account for operations of the soul which far exceed conscious cogitation, especially its life functions.[10] By contrast Cudworth conceived cogitation in a very broad sense, so broad in fact that it extends to life itself ("*enlarged* so as to comprehend all *Action* distinct from *Local Motion*, and to be of equal *Extent with Life*," (Ibid., 159)). On this view—even on a broadly-interpreted Cartesian account—*conscious* cogitation is only part of the picture, since non-conscious cogitation is also part of it. It follows that all forms of life, conscious or unconscious, are in some sense cogitative.

Aside from the absurdities which he thinks follow from limiting cogitative substance to *conscious* cogitation (e.g., that we must be conscious, even when asleep), Cudworth objects that the major consequence of Descartes' reductive account of the action of the mind is that everything else besides conscious cogitation must happen either by chance ("fortuitous mechanism") or by direct divine intervention (i.e., occasionalism). Cudworth claims furthermore that Descartes opted for mechanical causation ("acknowledging no other *Philosophick Causes* besides *Material* and *Mechanical*," Ibid., 175), because he in fact recognized the absurdity of occasionalism. So Descartes' failure to posit any incorporeal substance, apart from a *conscious* thinking substance,[11] highlights the incipient materialism of his system, since it meant that all operations of the soul apart from conscious cogitation would have to be carried out in a mechanical way, by the local motion of matter—and so, too, would the operations of nature.

3. Plastic Nature

As this suggests, Cudworth's objection to the Cartesian conception of the soul as *conscious* cogitative substance rests on fundamental differences in metaphysics.

For Cudworth the basic metaphysical categories in play are not in fact *res extensa* and *res cogitans*, but passive extension (i.e., matter) and active energy, or *life*: "the first Heads of Being" are "*Resisting* or *Antitypous Extension*, and *Life, (i.e.* Internal *Energy and Self-activity)*" (Cudworth 1678, 159; see Passmore 1951; Lähteenmäki 2010). The human soul is one of these living energies. So, too, is the primary causal agent in the created world, Plastic Nature. To be alive, means having self-activity or an internal principle of action, the ability to initiate actions, and a

capacity for self-direction. Life may be either conscious or unconscious: "*Life* or *Internal Self-activity*, is to be subdivided into such as either acts with express Consciousness and *Synaesthesis*, or such as is without it" (Cudworth 1678, 159). A major difference between the human mind and Plastic Nature is that the mind may be conscious of its actions, whereas the Plastic Nature operates unconsciously.[12]

Cudworth's account of Plastic Nature is set out in his "Digression concerning the Plastick Life of Nature" in his *True Intellectual System*, where he presents it as a direct response to Descartes' mechanistic natural philosophy and his conception of mind as conscious *res cogitans*. In terms of the causal schemes available in the seventeenth century Cudworth's hypothesis of "Plastic Nature" is an original causal scheme,[13] distinct from those flagged in canonical accounts of seventeenth-century philosophy.[14] A key feature of this hypothesis is that Cudworth insisted on retaining final causality, but not out of deference to Aristotelian theory (though he was happy to invoke Aristotle as an authority when it suited him). With Cudworth final causality reappears in a very different guise from Aristotle. Plastic Nature is a kind of force or energy, which combines efficient, final, and formal causality, and operates as the subordinate instrument of God, for maintaining

> the Orderly, Regular and Artificial Frame of things in the Universe, whereof the Mechanick Philosophers, however pretending to salve all Phaenomena by Matter and Motion, assign no Cause at all.
>
> (Cudworth 1678, 154)

This order is explicable in terms of the presence of mind in nature. As the principle means of infusing mind in nature, Plastic Nature constitutes a form of "mental causality":

> Mind and Understanding is the only true Cause of Orderly Regularity, and he that asserts a Plastick Nature, asserts *Mental* Causality in the World.
>
> (Ibid.)

That mind should be considered causal, and that Plastic Nature should be considered a form of "mental causality," is explicable in relation to the Platonist metaphysical framework within which Cudworth situates Plastic Nature. On this model, ideas are taken to be archetypes or prototypes of all things, intellectuality precedes physicality, mind precedes the world and stands in causal relation to all things that constitute the world. As Cudworth puts it, "a *Mind Before the World* and *Senior to All things*" provides "the Paradigm or Platform according to which this *Sensible World* was made" (Cudworth 1678, 734). This ur-mind, which is the mind of God,

containeth its Immediate Intelligibles within it self; which Intelligibles also are Eternal, and that Mind is no *Phantastick Image of Sensibles* not the *stamp* and *Signature* of them, but Archetypal to them; and the First Mind being That of a Perfect Being, comprehending it self, and the Extent of its own Omnipotence, or the Possibilities of all things. So that Knowledg is Older than all Sensible things; Mind Senior to the World, and the Architect thereof.

(Cudworth 1678, 847–48)

The relation of divine ideas to created nature is as *archetype* to *ectype*, form to copy: "*Nature* is not the *Divine Art Archetypal*, but only *Ectypal*, . . . a living Stamp or Signature of the Divine Wisdom" (Cudworth 1678, 155). Plastic Nature is a copy of this divine mind, but a faint one: "the mere *Umbrage* of *Intellectuality*, a faint and shadowy *Imitation* of *Mind* and *Understanding*" (Ibid., 172). Plastic Nature is thus the physical world infused with mind ("*Reason Immersed and Plunged* into Matter," Ibid., 155) or, to use a modern analogy, God's software programmed into the physical world to guarantee nature's workings in accordance with divine intention. This "plastic power" (also termed "spermatic")

> doth virtually contain within itself, the forms of all the several organical parts of animals, and displays them gradually and successively, framing an eye here and an ear there.
>
> (Cudworth 1996, 77)

Mind-infused nature, furthermore, is a system, not a chance conglomeration of particles of matter. Cudworth calls it, *pace* Aristotle, a "most wise contrivance." Nature is thus a kind of art—an idea for which Cudworth invokes the authority of Aristotle.[15] Cudworth in fact denies that there is an essential difference "betwixt things called artificial and natural" that is between things "commonly called artificial" like manmade objects, and "natural compounded things, such as plants and animals are" (Cudworth 1996, 93). In consequence he is just as likely to use man-made artefacts to illustrate his points. One such example, is the building ("an house or palace") described in *A Treatise concerning Eternal and Immutable Morality* which is an apposite example of mind-infused matter

> an house or palace is not only stone, brick, mortar, timber, iron, glass heaped together, but the very essence and formal reason (*ratio*) of it is made up of relative or schetical notions, it being a certain disposition of those several materials into a whole (*totum*) or collection (*compages*), consisting of several parts, rooms, stairs, passages, doors, chimneys, windows convenient for habitation, and fit for the several uses of men; in which there is the logic of whole and parts, order, proportion, symmetry, aptitude, concinnity, all complicated

> with wood, stone, iron and glass, as it were informing and adorning the rude and confused mass of matter, and making it both beautiful and serviceable. And therefore, for this cause, no man that is in his wits will say that a stately and royal palace hath therefore less reality, entity and substantiality in it than an heap of rubbish confusedly cast together.
>
> (Cudworth 1996, 92)

This house—any and every house in fact—is not just a haphazard collection of materials but materials arranged in a particular way, for a particular purpose. The design of the house, the formal aspects which make it recognizable as a house—its proportions, arrangement, and functions—are the "the passive stamp or print of intellectuality," the "logical notions" from the architect's plan.

> this logical form, which is the passive stamp or print of intellectuality in it [the house/palace], the first archetypes contained in the idea or skill of the architect, and thence introduced into the rude matter, successively with much pains and labour, is the only thing that distinguishes it from mere dirt and rubbish, and gives it the essence of an house or palace.
>
> (Ibid.)

Thanks to the operation of Plastic Nature, then, the physical world for Cudworth is cosmos, not chaos. Nature is not a jumble of material atoms "heaped together," or a "rude and confused mass of matter" (Cudworth 1996, 92), but purposeful, structured, orderly, and harmonious. The whole universe is "an Uniform Order and Harmony" (Cudworth 1678, 164). Individual bodies are "uniform and Orderly System or Compages." Just as with any building, the architect's design is apparent in its structure, so divine the design is manifest in the architecture of the world. Without the presence of mind in nature, the physical universe would dissolve into a desolate chaos of undirected material particles. Without Plastic Nature,

> the whole corporeal world in its naked hue, is nothing else but a heap of dust or atoms, of several figure and magnitudes, variously agitated up and down.
>
> (Cudworth 1996, 149)

4. Latent Knowledge and the Cognitive Status of Plastic Nature

Cudworth having gone to lengths to expound a causal system distinct from Cartesian and other types of mechanical philosophy, it is reasonable to ask how Plastic Nature figures among the causal *relata* of cognition.

What, if any, is the relationship between the "mental causality" represented by Plastic Nature, and cognition? If for Cudworth, the epistemic consequence of mechanistic causal systems, such as Descartes' physics, is an unintelligible world, how does his alternative causal scheme avoid this problem? If, as he claims, orderly nature is more intelligible than a disorderly one, how do we know?

First of all, a basic question concerns the cognitive capacities of Plastic Nature itself. Just as there are different types of energy or cogitative substance in Cudworth's system, so there are different cognitive capacities, and with them, different levels of knowledge. At the highest level, Cudworth is signed up to clarity and distinctness of ideas as the criterion of truth. But there are different degrees of clarity, and Plastic Nature is a case in point. Plastic Nature, like all energies, is for Cudworth "cogitative," but it operates, unconsciously, without awareness of its actions—or at least with only very dim perception.

There are two ways in which Plastic Nature can be considered as having knowledge: first in the sense that it bears the imprint of divine wisdom, as ectype or copy to archetype. It contains "the entire Idea the complete Model or Platform of the whole Organick Body" (Cudworth 1678, 164). Second, Cudworth also allows that it is possible to have knowledge in the sense of having mind-content that is merely latent, and not actualized. In the '"Digression," when explaining the unconscious nature of the workings of Plastic Nature, he cites the example of a musician and mathematician to illustrate the point that being unconscious does not mean forgetting everything, because the mind retains knowledge even in sleep:

> even the Sleeping Geometrician, hath at that time, all his Geometrical Theorems and Knowledges some way in him; as also the Sleeping Musician, all his Musical Skill and Songs.
>
> (Cudworth 1678, 160)

A difficulty here is that *pace* William Harvey, Cudworth asserts that nature acts in ignorance: "*Nature* is such a Thing as doth not *Know* but *only Do*" (Cudworth 1678, 156). But he qualifies this by saying that it acts "as it were half asleep and half awake," and later writes of it as having a rather dim and misty knowledge, "a Dull and obscure Idea of that which it Stamps and Prints upon matter" (Ibid., 160). (In this respect nature contrasts mere matter which is typically described as "stupid": "*Stupid Matter*, devoid of all Understanding, and Life," Ibid., 102). Cudworth in fact more often refers to Plastic Nature as lacking not just knowledge but understanding as well (its being "devoid of express Knowledge *and* Understanding"; "devoid of Knowledge *and* Understanding," Cudworth 1678, 10, my emphasis). This would suggest that what it lacks is a higher form of knowledge, reflective knowledge,

knowledge which is acquired by "deliberation and consultation" (Ibid., 158). So it is not incorrect to say that Plastic Nature has knowledge, and therefore in some sort *knows*. But whether it understands is another matter, since understanding involves knowing not just what but also why.

Key indicators of the cognitive status of Plastic Nature are first, that such knowledge that it has is not knowledge of its own making but derivative knowledge, received from God. Second, Plastic Nature lacks comprehension: it does not *understand* the reason for its actions. It acts in ignorance of why it does what it does ("though it self do not know the Reason of what it does, nor is *Master* of that Wisdom according to which it acts, but only a *Servant* to it," Cudworth 1678, 156). It performs its functions, "though it self do not know the Reason of what it does" (Ibid.). Hence his metaphors for Plastic Nature as the "drudging executioner" or "manuary opificer" of divine intention which carries out instructions, without knowing the reason for them, without knowing why it does what it does (Ibid., 155–56). Reasoning, understanding, being "master" of one's wisdom, and knowing "why," are a higher order of intellectual activity than merely possessing knowledge. The difference is like that between the knowledge by which an architect designs a building, and the knowledge of the builder (the "manuary opificer") who constructs it according to the architect's design. The latter's knowledge is passive to the former. To have full understanding, to be able to design the building, is to be "master" of one's wisdom. By contrast, the executor of the architect's plan is without a full understanding of what he is doing. So with Plastic Nature, which acts

> *Artificially* and for the *sake of Ends*, yet it doth but *Ape* and *Mimick* the *Divine Art* and *Wisdom*, it self not Understanding those Ends which it Acts for, nor the Reason of what it doth in order to them; for which Cause also it is not Capable of *Consultation* or *Deliberation*, nor can it Act *Electively* or with *Discretion*.
>
> (Cudworth 1678, 157)

Plastic Nature, with its inferior cognitive capacities cannot, therefore, grasp the essences of things, or be causal of higher forms of knowledge.[16] Much less can the mere objects around us be causal of cognition. Nevertheless, Cudworth claims that orderly nature, governed by Plastic Nature, and thereby infused with mind is intelligible. So what does it mean to be "Master" of one's own wisdom?

5. Cognition: Mastery of One's Own Wisdom

Cudworth's main account of human cognition is contained in his *Treatise Concerning Eternal and Immutable Morality* which he presents as an assault on Protagorean moral relativism and sensual epistemology, in a thinly

veiled attack on Hobbes. In this work Cudworth identifies two types of perception, one passive (sensation and imagination), the other active (intellection).[17] Intellection is a higher order of knowledge than sense-knowledge. Cognition at this level means understanding the ideas or essences of things. These are "conceptions of the mind" produced in the mind by the "innate cognoscitive power" of the mind (Cudworth 1996, 78).

Cudworth makes no reference to Plastic Nature in *A Treatise*, except at the end of the work, where he highlights the parallel between the human mind and "the spermatic or plastic power," by comparing the mind's capacity of framing intelligible ideas from within itself to the formative power of nature (Ibid., 128). However, the parallels between Plastic Nature and the human mind are in fact strong. On the one hand, mind-infused nature bears the imprint of God's intellectuality in the organization of its parts, and the harmonious function of natural processes. On the other hand, the human mind is also an imprint of the divine intellectuality ("all created intellects being certain ectypal models, or derivative compendiums as it were a microcosm of the divine," Cudworth 1996, 77). The human mind, like Plastic Nature, is derivative from the mind of God as ectype to archetype. Just as the first mind precedes the material world in the ontological order of nature, so in epistemology, the knowing mind pre-exists the knowable world. In consequence "Knowledg is Older than all Sensible things" and external things are therefore "the *secondary* objects of knowledge and intellection" (Ibid., 75).

Were it the case that cognition is caused by objects and people around us, then knowledge would originate from sense perception. But the senses can only give us a superficial and piecemeal impression of individual objects. The senses cannot reach the essence of things ("the essence of nothing is reached unto by the senses," Cudworth 1996, 59). Besides which there are many ideas, which cannot be perceived by the senses because they do not have sensible qualities. For example "logical relations or notions" which are devoid of sensible properties such as shape or colour" (Ibid., 95).

Being aware of the external world is not in fact a pre-requisite for knowledge: the mind can deduce geometrical and mathematical truths, for instance, without observing shapes and other sensible objects. Cudworth argues that it is possible to arrive at the idea of a triangle without ever seeing one.[18] The mind is able to grasp the idea of body (figure, site, and motion) in exactly the same way that it can grasp the nature of a triangle. Such ideas constitute the essence of the thing, and are produced by reflecting on the truths and relations which the mind already possesses. The same process is involved even when it observes an actual body, such as a geometrical shapes in the physical world. So, for example, the intelligible constituents of a white triangular figure are body, color, and shape. But to understand what a triangle is, the mind must then apply "its own inward notions and active anticipations" (Cudworth 1996, 104) which

enable it to sort the appearance from constituent ideas which make up triangularity, and thence deduce the essence of the whole triangle.

> when a man looking upon a material triangle, square, circle, cube, sphere, in which there are some palpable irregularities, which he judges of by comparing them with some inward pre-existent ideas that he hath in his mind of a perfect individual triangle, square, circle, cube, and also conceives some dislike and displeasure at the disconformity of the one to the other.
>
> (Ibid., 109)

By this means the mind is able to see beyond the immediate physical appearances and interpret physical sensations, rather as a reader who sees inky marks on a page, can see that they are letters making up words and expressing meaning.

Cognition for Cudworth is not a passive process, but it involves *activity* of mind. Knowledge produced in the act of cognition is not acquired passively from outside the mind, but is the product of inner mental processes, in which the mind is "formative of its own cogitations" by virtue of its "innate cognoscitive power" or "innate vigour" (Cudworth 1996, 74, 94–95). For this, it does not need to look outside itself, to the external world. The mind is able "to know and understand" solely by what is "native and domestic to it" (Ibid., 57), "to read inward characters written within itself . . . and intellectually comprehend an object within itself" (Ibid., 60), to apprehend the "logical relations or notions . . . art or skill . . . occasionally invited from the mind itself" (Ibid., 95). In fact he goes so far as to claim that "scientifical knowledge is best acquired by the soul's abstraction from the outward objects of sense, and retiring into itself" (Ibid., 78).

Cognition depends first on *prolepsis*, or "anticipation." The mind is not a *tabula rasa* but is ready furnished with universal principles and conceptual entities such as logical relations, which it contains by virtue of its "participation" in the mind of God. In this respect, the mind is an intellectual microcosm, "a kind of notional or representative world, as it were a diaphanous and crystalline sphere, in which the ideas and images of all things existing in the real universe may be reflected or represented" (Cudworth 1996, 77). However, the inner mental furniture of the mind is not a literal depository of "the "images or sculptures of all the several species of existent things fixed and engraven in a dead manner upon them." "The *rationes* and essences of things are not dead things," but "living things" and "modifications of mind or intellect" (Ibid., 77, 128). The pre-existing mental content of the mind is, rather, a dispositional aptitude of the mind, its capacity to form ideas of all intelligible things which are therefore contained "virtually and potentially" (Ibid., 77). Second, cognition entails recall or recollection: the mind is endowed

with the capacity to draw on this internal resource, since it is endowed with "a power of raising intelligible ideas and conceptions of things from within itself" (Ibid., 75). Cudworth characterizes its *modus operandi* as an "obstetricious method," like that of Socrates, in which the mind is, as it were midwife to the birth of ideas.[19] Third, cognition requires reflection: understanding what a triangle is (its essence) requires, not a simple matching something to its pre-existing idea. Reflection involves comparing ideas and logical relations, and considering what fits together and why. So, for example, to the human mind a watch is not simply a collection of metal components, but components shaped in a particular way for a particular purpose. Considering these elements in relation to each other and bringing further ideas into play (e.g., ideas of cause and effect) the mind can deduce that the object is a time-piece, and why it is constructed the way it is. By this means, it understands the object to be a watch (Cudworth 1996, 85–86). Finally, cognition entails recognition—both in the sense of understanding what something is, and in the sense of noting similarities between ideas, and similarities between the intelligible properties of things and its own store of ideas. Recognition depends on symmetries or correspondences between the ideas in the mind or between those ideas and the external world.

However, this doesn't mean that the senses have no function in cognition. On the contrary, Cudworth holds we can't have knowledge of the world outside by reason alone independently of sense. Sense is important for making us aware of the world outside us. Sense experience provides "hints" of the external world and "advertisement of corporeal things existing without us," from which the mind may deduce their true natures, and provide explanations ("find out their natures and invent intelligible hypotheses to solve those appearances," Cudworth 1996, 57). However, although as a passion of the soul, sensation is cogitative, sensations are passive, and involuntary. Sense perception is at best "a certain kind of drowsy and somnolent perception," Cudworth 1996, 56). The intervention of the mind is required to process sense impressions and thereby generate knowledge of the external world. Although sensations may stimulate the mind to take notice of the world outside, the mind, unlike the senses, has power to direct its attention, so it is not reliant on the senses to initiate cognition.

Cognizing the world around us is a two-way process, exercised by the mind, as it were a looking outward and a looking inward. The act of knowing the external world involves the mind as it were going outside itself, or protruding beyond itself onto the world outside it, or, as Cudworth puts it, the mind "descends" from universals to particulars. Cognizing the external world also involves inner recall and reflection in which the soul draws on this fund of internal ideas ("pre-existent ideas") and compares them with the case in hand. To illustrate this interplay of inner and outer, sensation and reflection, to sort out appearances from true

ideas, Cudworth several times compares it to recognizing a friend in a crowd, or seeing the portrait of a friend in a picture gallery.

> when a man looks upon certain lines drawn with ink upon a piece of paper something resembling the face of a man, his mind doth not fix and stay itself in the consideration of those inky lines, but presently upon this occasion excites within itself the idea of a man's face. Or when a man walking in a gallery where there are divers pictures hung upon the wall, chances amongst them to espy the picture of a friend or acquaintance of his, which, though perhaps far from an exact resemblance yet notwithstanding makes him presently to excite the idea of his friend in his imagination. Neither of which things could possibly be, if there had not been a previous and pre-existent idea of a man's face, or such a certain friend in his mind before. For otherwise a man in this case could think of nothing but just that was impressed upon him by sense, the figures of those inky delineations, and those several strokes and shadows of the pictures.
>
> (Cudworth 1996, 106)

This picture-gallery example amply illustrates that cognition is, in the last analysis, an act of recognition. Of course, there are other processes at work: sense perception for one. Before someone can recognize a drawing as a portrait, he must first see the pencil marks. The gallery-goer would not recognize his friend if he did not first *see* the picture. But, as we have already noted, sensing (in this case seeing) is not on its own knowledge. Nevertheless, as this example illustrates, sense perception plays a role in cognition, by prompting the mind to recall ideas from its internal fund.

Another aspect of the gallery experience is the role of memory: the act of recognizing his friend requires Cudworth to remember what he looks like, to call to mind a previously formed image of him. Memory is a storehouse of such images, a container of knowledge acquired through experience, or skills that have been learned by habit (e.g., lute-playing, singing, and dancing), and other "conceptions of the mind." Most of the time the knowledge on which it draws is un-actuated knowledge, knowledge contained in the mind as in the case of "the Sleeping Geometrician" in the "Digression concerning Plastic Nature," who "hath at that time, all his Geometrical Theorems and Knowledges some way in him; as also the Sleeping Musician, all his Musical Skill and Songs" (Cudworth 1678, 160).

The world out there is not *cause* but the *occasion* of recognition. Nevertheless, there would be no recognition if there were no correspondence between the mind and the external world. For Cudworth, the world around us is structured on a symmetry of mind and its object, between knower and known. What is cognizable is what is recognizable. And what the soul recognizes are the intelligible signatures of divine wisdom

imprinted in nature, which correspond to "the ideas and images of all things" which the mind contains by virtue of its being a copy of the divine mind. It is in this sense that in the act of cognition, the mind sees itself in nature as if in a mirror: "the mind beholds as it were its own face and image reflected to itself from a corporeal glass" (Cudworth 1996, 87).

6. Conclusion: Plastic Nature and the Cognizable World

Returning to the question of the causes of cognition, and the role of "mental causality": it is clear that the human mind, for Cudworth, is causal of its own cognitions, in derivative relation to God. But mental causality, in the form of Plastic Nature, cannot be considered among the direct causes of cognition. Nevertheless, Plastic Nature has a crucial role in making the world intelligible. For this reason it must be considered as one of the causal *relata* of cognition. Plastic Nature is, so to speak, a carrier of "intellectuality" in the natural world. As the principal agent of God's purpose, Plastic Nature bears the imprint or stamp (ectype) of divine intellectuality (the "Signatures of Mind and Understanding, Counsel and Wisdom") which are intelligible to the observing mind. The presence of *intelligibilia* in nature is made most explicit in Cudworth's example of the "house or palace," cited earlier, where the "print of intellectuality" are the formal aspects of design of the house—its proportions, arrangement of its parts and their functions—which make it recognizable as a house. These are "logical notions": "relative or schetical notions," "the logic of whole and parts, order, proportion, symmetry, aptitude, concinnity," the disposition of material into structures or forms (rooms, stairs, passages, doors, chimneys) features which indicate what they are designed for ("convenient for habitation, and fit for the several uses of men"). It is by grasping these "logical notions" that the mind recognizes a building as a house or palace and not just "an heap of rubbish confusedly cast together." The "logical notions" are the principles of intelligibility by which the active mind can grasp its essence. In the wider external world, it is such "logical notions" as these, infused by Plastic Nature, which render it *cognizable*. But they are not accessible to the senses and not even to animals because without "an active intellectual principle" they "could not comprehend from thence the formal idea and nature of an house or palace" (Cudworth 1996, 93).

The "book of nature, the whole visible and material universe" is "legible only to an intellectual eye." By "exerting its own inward activity" the mind is able to access, "a wonderful scene and large prospect of other thoughts laid open before it, and variety of knowledge, logical mathematical, metaphysical, moral displayed" (Ibid., 101). The ground and guarantor of the intelligibility of the world is Plastic Nature, which can therefore be said to render bodies in the world every bit as intelligible bodies in Descartes' physics. But in Cudworth's view, mind-infused

nature, the intelligent design of Plastic Nature, which retains purpose and guarantees harmony, makes it possible to understand that the physical world is more than a chance collection of bodies. The work of Plastic Nature thus renders not just bodies but the whole of created nature intelligible, and therefore cognizable, enabling the perceiving mind to grasp the intellectual system that supports the visible world.

Notes

1. Quotations are taken from my edition (Cudworth 1996). Earlier editions of Cudworth's work which include this are liable to cause confusion, because *A Treatise* is not clearly distinguished as separate, so quotations from it are wrongly re-quoted as if from the *True Intellectual System*. Such is the case, for instance, with Charles M. Richards's entry on Cudworth in the *Internet Encyclopedia*.
2. For more information, see Hutton 2016. These unpublished writings show that he was very much preoccupied with how the mind translates knowledge into action.
3. The depth of Cudworth's engagement with Descartes was such that one could argue that the philosophical core of his project (which was to set out the correct or *true* intellectual system that gives his *magnum opus* its title) was conceived as a corrective response to Cartesian philosophy.
4. Cudworth's engagement with Descartes has long been recognized, but the full extent of it has yet to be explored. See Passmore 1951; Sailor 1962; Lähteenmäki 2010; Allen 2013; also Hutton 2019. For his rejection of scholasticism, and his repudiation of Hobbes, see Mintz 1962; Parkin 2007.
5. Descartes was not, of course, an atomist. He is better described as a corpuscularian, and this is what probably Cudworth had in mind when he calls Descartes an atomist.
6. See also his statement that body "hath nothing belonging to it but Magnitude, Figure, Site, Rest, and Motion, without any Self-moving Power" (Cudworth 1678, 49).
7. Another recommendation of atomism is that it rules out thinking matter: if "matter is . . . nothing else but what may be produced from mere magnitude, figure, site, local motion and rest . . . it is demonstrably evident, and mathematically certain, that no cogitation can possibly arise out of the power of matter" (Cudworth 1996, 151).
8. Ultimately, in Cudworth's view, the underlying problem was Descartes' voluntarist conception of divine will, and his identifying free will with indifference of will. As a consequence, truth and goodness are rendered arbitrary (literally so) since God may freely determine the nature of truth and goodness purely by the power of his will.
9. Cudworth's interpretation aligns him with those interpreters who historically focused on what the mind *does*. The other main line of interpretation, represented by Locke, emphasizes consciousness as the distinctive character of thought (cf. Locke: that it is unintelligible that "any thing thinks *without being conscious of it*, or perceiving that it does so," *Essay* II.i.19, p. 115) (Alanen, in Nolan 2016, 713).
10. Cudworth's sense of the inadequacy or insufficiency of Descartes' conception of *soul* or *mind* for capturing the full function of the soul, recurs of course to the Aristotelian conception of the soul as the seat of life (Aristotle, *De anima* 1.2).

11. In point of fact, of course, Descartes understands thought (cogitation) in a broader sense than Cudworth allows, since it includes a whole range of mental operations: intellection and reasoning, judging, understanding, as well as, doubting, affirming, denying, willing, imagination, and sense perception come within the province of thought (see *Meditations* 3).
12. For a lucid introduction to Cudworth's philosophy and his concept of Plastic Nature see Allen 2013. Recent discussions of Cudworth's "Digression" focus chiefly on consciousness. See e.g. Lähteenmäki 2010; Thiel 2011; Pécharman 2014.
13. It does, as Cudworth himself acknowledges, have analogues in ancient Stoicism (Cudworth 1678, 131–32).
14. His theory is not listed among causal theories in standard accounts, despite its having a long afterlife into the nineteenth century. Steve Nadler's *Causation in Early Modern Philosophy*, for example, only deals with "Cartesian interactionism, occasionalism and pre-established harmony" (Nadler 1993, 2).
15. Aristotle is an important source for Cudworth's account of Plastic Nature (Hutton1999). He even claims Aristotle's conception of nature as *techne* (*Physics* 2.8) is a version of Plastic Nature. Plotinus is another important source for him (see *Enneads* 4.4.13 on this particular point).
16. I therefore disagree with Charles M. Richards, who accords Plastic Nature a significant role in Cudworth's epistemology, arguing (incorrectly in my view) that it is Plastic Nature which communicates universals to the conscious mind. (Richards, "Ralph Cudworth").
17. Plastic Nature also has an important role in sense perception and the workings of the imagination. But since these are not directly causal of cognition, I do not discuss them here.
18. His un-named source is of course Plato's *Meno*.
19. On Cudworth's view this is the only sense in which Plato's doctrine of *anamnesis* or recollection is viable, Plato having originally linked it to the pre-existence of the soul, which Cudworth rejects (Cudworth 1996, 74).

Literature

Allen, Keith. "Cudworth on Mind, Body, and Plastic Nature." *Philosophy Compass* 8, no. 4 (2013): 337–47.

Cudworth, Ralph. *The True Intellectual System of the Universe*. London: 1678. Facsimile reprint Stuttgart-Bad Canstatt: Olms, 1964.

———. *A Treatise Concerning Eternal and Immutable Morality and a Treatise of Freewill*, edited by Sarah Hutton. Cambridge: Cambridge University Press, 1996.

Darwall, Stephen. *The British Moralists and the Internal "Ought," 1640–1740*. Cambridge: Cambridge University Press, 1995.

Giglioni, Guido. "Automata Compared: Boyle, Leibniz and the Debate on the Notion of Life and Mind." *British Journal for the History of Philosophy* 3, no. 2 (1995): 249–78.

Hutton, Sarah. "Aristotle and the Cambridge Platonists: The Case of Cudworth." In *Conversations with Aristotle*, edited by Constance Blackwell and Sachiko Kusukawa, 337–49. Aldershot: Ashgate, 1999.

———. "Salving the Phenomena of Mind: Energy, Hegemonikon, and Sympathy in Cudworth." *The British Journal for the History of Philosophy*. Special issue on *Mental Powers* 25, no. 3 (2016): 465–86.

———. "Cartesianism in Britain." *The Oxford Handbook of Descartes and Cartesianism*, edited by Steven Nadler, Tad M. Schmaltz, and Delphine Antoine-Mahut, 495–513. Oxford: Oxford University Press, 2019.

Lähteenmäki, Vili. "Cudworth on Types of Consciousness." *British Journal for the History of Philosophy* 18, no. 1 (2010): 9–34.

Mintz, Samuel. *The Hunting of Leviathan*. Cambridge: Cambridge University Press, 1962.

Nadler, Steven. *Causation in Early Modern Philosophy*. University Park, PA: Penn State University Press, 1993.

Nolan, L. *The Cambridge Descartes Lexicon*. Cambridge: Cambridge University Press, 2016.

Parkin, Jon. *Taming the Leviathan: The Reception of the Political and Religious Ideas of Thomas Hobbes in England 1640–1700*. Cambridge: Cambridge University Press, 2007.

Passmore, J. A. *Ralph Cudworth. An Interpretation*. Cambridge: Cambridge University Press, 1951.

Pécharman, Martine. "Cudworth on Self-Consciousness and the I Myself." *Vivarium* 52, no. 3–4 (2014): 287–314.

Phemister, Pauline, and Justin E. H. Smith. "Leibniz and the Cambridge Platonists: The Debate Over Plastic Natures." In *Leibniz and the English Speaking World*, edited by Pauline Phemister and Stuart Brown, 96–110. Dordrecht: Springer, 2007.

Richards, Charles M. "Ralph Cudworth (1617–1688)." *Internet Encyclopedia of Philosophy*, n.d. Accessed November 2018. www.iep.utm.edu/cudworth/#SSH4cii.

Rogers, G. A. J. R., et al., eds. *The Cambridge Platonists in Philosophical Context. Politics, Metaphysics and Religion*. Dordrecht: Springer, 1997.

Sailor, Danton B. "Cudworth and Descartes." *Journal of the History of Ideas* 23, no. 1 (1962): 133–40.

Thiel, Udo. *The Early Modern Subject: Self-Consciousness and Personal Identity from Descartes to Hume*. Oxford: Oxford University Press, 2011.

6 Nothing Is Simply One Thing

Conway on Multiplicity in Causation and Cognition

Julia Borcherding

1. Introduction: Simplicity, Multiplicity, and Agency

Looking back across the history of Western philosophy, we find a long line of tradition that emphasizes the unity and simplicity of the minds of epistemic and moral agents. For Aquinas, for instance, the mind's ability to engage in higher-level cognition crucially depended on its simplicity: if it was to cognize the universal natures of things, it had to be simple and incorporeal rather than material, complex, and therefore limited in nature.[1] Moreover, many held that the identity of particular agents in and through time required an underlying simple substance. Only a simple substance, Plato for example argued in the *Phaedo*, is guaranteed to be stable, since any change would imply a change of parts.[2] Relatedly, moral agency—in particular once combined with the Christian promise of just reward and punishment after death—was often thought to call for a simple soul that would provide a fixed locus for the attribution of responsibility even after an agent's bands of memory had become frayed.

Let us call the view demarcated by these and related claims the "simplicity thesis." Two prominent proponents of the simplicity thesis in the early modern period were Descartes and Leibniz. Both held the mind to be grounded in a simple substance, and both indeed went on to assert that we could introspectively confirm this to be the case. Moreover, both regarded the soul's simplicity as implying its immateriality and distinctness from body.[3] "[W]hen I consider the mind," Descartes famously argues in the Sixth Meditation, "or myself in so far as I am merely a thinking thing, I am unable to distinguish any parts within myself; I understand myself to be something quite single and complete."[4] And having understood thought and extension to be opposites, we can then infer that "the mind is completely different from the body," insofar as the latter is extended, while the former is simple and thus immaterial.[5] In a similar vein, Leibniz argues in numerous writings that our reflective experience of the self as a unified subject that apperceives a complex perceptual content forces us to admit that the subject of perception must be an indivisible and thus immaterial substance.[6] Yet while these and further considerations

in favor of the simplicity thesis certainly proved influential, not everyone in the period followed suit. Among its deniers were materialists such as Thomas Hobbes and Pierre Gassendi. But a particular intriguing example of someone resisting the allure of simplicity was Anne Conway. For on the one hand, she—against the materialists and in line with Leibniz and Descartes—endorsed the mind's spiritual nature. Yet on the other, she also—alongside the materialists—rejected its simplicity.

Following in the footsteps of her teacher Henry More, Conway attributes extension to both body and spirit.[7] However, she then rejects More's attempt to uphold Cartesian dualism and the simplicity of the soul, which for More—as for Descartes—was the only thing that could secure its immortality. According to More, unlike the body's extension, the soul's extension does not imply its divisibility. For if the soul, he argues, were an aggregate of "truly disjoined Atomes," it could not persist, nor could it perform any of the functions required of it. It would be too weak to move its body, could not provide the unity so clearly present in sensation or thought, nor could it account for personal identity.[8] Conway, by contrast, rejects More's commitment to the simplicity thesis, thus breaking the connection between divisibility and immateriality that he strives so hard to maintain. All of creation, she argues against More's modified Cartesianism, consists of spiritual particles, each of them potentially divisible *ad infinitum*, be they called "minds" or be they called "bodies."[9] But not only does Conway regard multiplicity and spirituality to be mutually compatible. She also takes a close consideration of the nature of cognition and causation to show that the minds of moral and epistemic agents not only can be, but indeed *must* be complex and multiple. Contrary to Descartes, Leibniz, or More, she thus proposes what I will call the "multiplicity thesis." Anything "that has any life, sense, or motion," she asserts, "must be multiple or numerous," and this holds true just as much of minds as of bodies. Even a "central or ruling spirit," she insists, is not "a single atom," but "multiple."[10]

The remainder of this chapter will examine Conway's commitment to this intriguing thesis in greater depth. I begin by outlining some key features of her ontology as she presents them in her only surviving philosophical work, the *Principles of the Most Ancient and Modern Philosophy*, and draw out some crucial points of similarity and contrast between her view and the Leibnizian one, to which it has frequently been compared in the literature.[11] I then present Conway's case of the "lonely atom," which she uses to advance her claim that any individual creature as well as any individual mind needs to be a multiplicity, and examine the views that I take to underwrite it: her account of motion as vital action, and her account of cognition as spiritual generation. Finally, I return to some of the broader features of Conway's ontology, and briefly develop a suggestion for how—in light of her views regarding causation and cognition—we might best frame Conway's ontology as a whole.

2. Starting Points: Emanation and the Nature of Creation

While Descartes' philosophy takes its starting point in the *cogito* of the thinking self, Conway's begins with a consideration of God's nature, from whose attributes, she holds, ultimately all properties of the natural world can be deduced. God, Conway asserts, is "spirit, life and light" and his goodness a "living goodness, consisting of life, knowledge, love, and power."[12] As each created being must flow from the being of God, it therefore must also—at least to a degree—share in His vital nature. All of God's communicable attributes, she argues, imply life, and therefore no being created by God could be without it.[13] Moreover, God is both transcendent and immanent: He is a substance essentially distinct from His creatures, yet He is also "present in everything most closely and intimately" and "operates in and with creatures in producing and generating all things."[14] Presenting an emanative influx model, Conway describes how God infuses creation with life and activity by means of a vital force that cascades through descending orders of being. Like the "vital" or "plastic" natures postulated by More and his fellow Neoplatonist Ralph Cudworth, Conway identifies a vital principle that mediates the spiritual force emanating from God, and eventually unites it with matter.[15] This principle is "Christ" or the "Adam Kadmon" of the Kabbalah, who figures as a mediator or "middle nature" between God and creatures.[16] As *logos prophorikos* (the word of God insofar as it has been spoken) and the first emanation of God, Christ's intimate presence in creatures enables them to act, and affords the potential for perfection to each.[17]

Against a Cartesian conception of the physical world filled with passive matter and populated by bodies that are but the objects of geometry made real, Conway thus posits a constantly transforming universe of creatures animated by spiritual principles. "Cartesian philosophy," she concludes in the final chapters of the *Principles*,

> claims that body is mere dead mass, which not only lacks life and perception of any kind but is also utterly incapable of either for all eternity. This great error must be imputed to all those who say that body and spirit are contrary things and unable to change into one another, thereby denying bodies all life and perception. This is completely contrary to the fundamentals of our philosophy.[18]

While she still retains a distinction between bodies and minds in terms of their differing qualities, Conway insists that these qualities are grounded only in modal or accidental differences, not in an essential one. What we call "body" and "mind" or "spirit" are merely more "dense" or more "volatile" portions of animated matter. Any portion of this "spiritual matter" has the traditional attributes of both spirit and body: it has size, solidity, shape, and motion, but also life and perception.[19]

Everything material, therefore, is ultimately "nothing but spirit," differing from a spirit "only insofar as it is darker."[20] "Creation," she writes

> is only one entity or substance in respect to its nature or essence, as demonstrated above, so that it only varies according to its modes of existence, one of which is corporeality.[21]

In sum, Conway defends what we might nowadays call a "type monist" view about created substance: all created beings fall under exactly one highest type ("spirit"), and differ merely with respect to their mode of existence.

But while she arguably espouses the view that creation is only one in *kind*, it is less clear whether she also defends the stronger claim that it is only one in *number*. This "token monist" reading views Conway as going beyond type monism to embrace an essentially Spinozist ontology, which allows for (numerically) one created substance only and views all finite individual creatures as modes of this substance. Even under very close scrutiny, the text of the *Principles* seems to remain ambiguous on this issue, with some passages pointing one way, and others another.[22] Indeed, the passage just quoted above seems indicative of this difficulty. For how should Conway's claim there that creation is "only one entity" be understood? Is it merely one in kind, or also one in number? The question, however, is an important one, and commentators' answers clearly diverge.[23] While I do not believe that a consideration of Conway's views on causation and cognition alone will solve this puzzle, it is my hope that they may help us make some headway towards a resolution. I will therefore briefly return to this puzzle in the fourth and final section of this essay, after having considered these views more closely. But to start with, let us inquire a little further into how Conway conceives of the created individuals that serve as the loci of causal and epistemic agency.

3. The Nature of Created Individuals

According to an influential interpretation first proposed by Caroline Merchant, Conway's metaphysics of created substance strikingly resembles Leibniz's metaphysics of monads.[24] To begin with, she points out, both philosophers seem to use the term "monad" to describe created individuals.[25] Indeed, Merchant suggests, Leibniz in fact appropriated the term from Conway's doctor and friend Francis Mercury van Helmont, after the latter had acquainted him with Conway's work on a visit to Hanover in 1696.[26] Moreover, Merchant points us to a number of significant philosophical parallels between Leibniz's and Conway's system, for instance between Conway's view of individuation via a "ruling spirit" and Leibniz's account of "monadic domination."[27]

We now have good textual reasons to doubt Merchant's historical claim regarding Leibniz's use of the term "monad", as more recent scholarship

has revealed at least one occurrence of the term in Leibniz's writings that precedes van Helmont's visit.[28] But what about the alleged philosophical parallels between Leibniz and Conway? There are indeed, it seems, some intriguing similarities between their views. However, I would now like to suggest, these owe their existence not to a shared metaphysics of substance, but to a shared commitment to vitalism—the view that there is, as Leibniz puts it in the *New Essays*, "life and perception in all things."[29] Moreover, I shall further argue, a closer investigation of this shared commitment in the end only helps to bring some distinctively un-Leibnizian elements of Conway's account into sharper focus. For while Leibniz holds that the universal presence of life and perception within the created universe requires us to assume the existence of simple, indivisible, causally isolated unities or monads, for Conway, it requires precisely the opposite: if a created being is meant to act and perceive, this being must be divisible, multiple, and intimately connected to others.

But let us start with some common ground. Importantly, both Leibniz and Conway view creation as pervaded by activity. For Conway, "vital action" is an essential attribute of creation and a force intimately present in all its parts. As we will see in more detail below, it explains the motions of creatures, as well as their ability to sense and perceive. Similarly, Leibniz identifies activity and perception as the essential features of monads, and emphasizes that there is "nothing sterile, fallow, or dead in the universe."[30] This further implies, as Leibniz perceptively points out, that for both him and Conway, mechanical and final causes proceed in tandem.[31] Each creature is moved by mechanical motions, yet at the same time also engages in goal-directed activity to achieve what it perceives to be a greater good, such that everything in the natural world is engaged in constant flux and transformation.[32] However, Conway here is even more radical than Leibniz. For while Leibniz still holds on to categorical boundaries between different types of substances, Conway ensures the possibility of universal salvation by arguing that any creature is of the same substantial kind as any other, and thus has the potential to climb up and down the ladder of species.[33] In due time, she argues, any creature is able to further perfect itself by increasing its vitality, and can thus change, for instance, from a plant to a horse, from a horse into a human being, or from a human being into an angel.[34]

Next to sharing a vitalist, perfectionist account of creaturely action, Conway and Leibniz also both conceive of organic life as possessing an infinite structure, and of individual creatures as nested aggregates that contain yet further creatures.[35] Conway's commitment to this view follows from a divine principle of plenitude. God's infinite power, she argues, led Him to multiply creatures to infinity, and to place a creature within every creature, such that every creature has "infinity within itself."[36] Further, both hold that the unity of any natural, living body is grounded in a "dominant monad" or "principal spirit" which unifies all the others that compose it,

and which for Conway forms the core of a human soul.[37] Finally, they also both place a shared emphasis on the embodied nature of all cognition. Even our grasp of necessary truths, Leibniz argues in the *New Essays*, is always conditioned by our embodied existence insofar as it depends on images and symbols we employ in thought.[38] Similarly—as I will more fully explore below—Conway insists that any cognitive act, from perception to intellection, requires both a spiritual and a bodily principle.

However, next to these similarities, a closer consideration of Conway's and Leibniz's shared commitment to vitalism also reveals a number of underlying deeper differences. Even though Conway's creatures and Leibniz's monads share some significant features, these features turn out to depend on contrary assumptions about the underlying ontological make-up. Crucially, whereas the activity, perception, and—ultimately—reality of Leibnizian monads depends on their unity and simplicity, for Conway, parthood is essential to a creature's ability to act and cognize, and indeed to its very existence.[39] For Leibniz, monads are non-extended and non-spatial combinations of active and passive power. Their activity, in turn, requires their simplicity and causal independence. They are not aggregates, but true unities, which—at least for the Leibniz of the *Monadology*—implies that they are truly without parts.[40] Moreover, as Leibniz famously puts it in the same work, they do not have "windows": Rather than being causally affected from the outside, monads are the autonomous sources of their own activity, and thus able to perfect themselves individually. Conway, however, defends the very opposite: in order to be able to cognize and act, minds need to be multiple. Hence, contrary to Leibnizian monads, Conway's "spirits" *do* have parts. They are "physical," extended and potentially infinitely divisible aggregates.[41] "[T]he smallest creatures which can be conceived," she emphasizes, still "have an infinite number of creatures within themselves so that the smallest particles . . . can be extended or divided in infinite ways into ever smaller and smaller parts."[42] This view puts her in opposition not only to Leibniz, but also to More, who postulates "physical monads," yet denies that they are divisible into parts.[43]

In response to Conway, a Leibnizian might point to a regress that seems to threaten here: if all that existed in the created universe were aggregates, then we could never reach anything substantial or real that could ground their reality.[44] It is interesting to note that Conway is aware of this line of argument, and also attempts a response. It is true, she grants, that anything extended is in principle infinitely divisible. However, given His benevolent nature, God would never in fact reduce creatures to their smallest physical parts. For if He did so, all motion would then cease, since "it is the nature of motion to divide something into smaller and smaller parts."[45] A Leibnizian, of course, may not find this response particularly compelling. For even if God did not in fact reduce creatures *ad infinitum*, they still *could* in principle be so reduced, and

thus the worry that there are no ultimate entities to ground their reality still seems to stand. However, Conway's response is instructive insofar as it further highlights a key difference between Leibniz's ontology and hers: Conway's individuals crucially differ from their Leibnizian counterparts insofar as their vitality—their ability to move, cognize, and act, and to thereby perfect themselves—depends on their extended, complex nature. "Truly," Conway writes, explicitly drawing out this consequence of her view, "it is the nature of a creature that it cannot be merely singular if it has to act and enjoy that good which the creator prepared for it."[46] The next two sections will explore this "multiplicity thesis" in more detail. I will first present a small thought experiment Conway uses to illustrate her claim, and then go on to examine the account of causation and cognition that underwrites it.

4. Causation as Vital Action

To support her claim that a creature's vitality requires its multiplicity, Conway asks us to imagine a "lonely" atom:

> [L]et us suppose a single atom separated from all its fellow creatures. What can it do to perfect itself and become greater and better? What can it see, or hear or taste or feel, either within or without? It cannot have internal motion, since any motion has at least two ends or extremes, namely a starting point and an end point. And if this atom is single, or if its center certainly cannot have motion from a beginning to an end within itself, and if it therefore cannot see, hear, taste, or feel anything from within itself, it certainly also cannot receive anything from without, from other creatures.[47]

A single atom, internally simple and existing in isolation from all others, Conway claims in this passage, could never achieve greater perfection. It cannot engage in motion, and therefore also not in any sensory activity. For motion, she argues, requires both a starting point (*terminus a quo*) and an end point (*terminus ad quem*). An isolated atom, however, being internally simple, could not engage in the internal motion such cognition requires, nor could it, being single, receive any sensory information from without.[48]

But why exactly should all motion and sensation require such complexity? In order to gain a better understanding of Conway's claim, let us skip ahead to Chapter 9 of the *Principles*, where Conway offers her theory of "vital action" as an explanation for how motion can be transmitted, even though it "certainly is neither a substance nor a body."[49] According to Conway, each creature has two attributes: spirit or "life," which she defines as "the capacity for every kind of feeling, perception or knowledge, even love, all power and virtue," and extension,

which accounts for its shape and mobility.[50] Extension, in turn, is of two kinds: insofar as it simply takes up physical space, a body is "materially" extended. This type of extension remains constant as long as the same body persists. However, as a result of its "virtual life" or God-given force each creature's body also has "virtual" extension (*extensio virtualis*). Unlike material extension, this type of extension varies according to a creature's degree of vitality—the more it perfects itself, the greater its vitality, and the more mobile and subtle its matter.[51]

Moreover, corresponding to these two types of extension, a body can engage in two kinds of motion: merely mechanical locomotion (*motus localis*) or "the carrying of the body from one place to another," and internal motion or "vital action" (*actio vitalis*). In contrast to the passive locomotion of bodies, which solely consists in their change of place, Conway characterizes vital action as the exercise of the spiritual force emanated by God and mediated through Christ that is intimately present in all creatures, and accounts for their ability to cognize and act.[52] She further points out that while mechanical motion and vital action are distinct, they are also often inseparable, because mechanical motion can serve as an "instrument" to excite vital action in the subject or percipient.[53] Along with her claim that vital action is a kind of extension, this highlights vital action's spatial nature: via the medium of mechanical motion, creatures can extend themselves across space through their "subtle parts" and thereby communicate motion and life to others, or—conversely—receive motion or life from them. Here, vital action and mechanical motion work together. Visual perception, for instance, involves the mechanical movement of the eye through particles of light. These particles, in turn, excite the vital action of the eye which properly constitutes vision, and which consists in the eye's sending out spiritual particles to the object, thus "uniting object and sight."[54]

Crucially, given this account, all vital action thus depends on the presence of parts in the subject of activity, as well as on the ability to physically extend by means of them. Contrary to Leibniz, for Conway vitality is therefore closely linked to multiplicity, because only a complex being is able to extend itself and become more subtle through its parts. Nature, she writes

> always works toward the greater perfection of subtlety and spirituality since this is the most natural property of every operation and motion. For all motion wears away and divides a thing and thus makes it subtle and spiritual. . . . Through those spirits . . . we see, hear, smell, taste, touch, feel, indeed, think, love, hate, and do everything we do.[55]

An individual's complex nature, Conway emphasizes, is a necessary condition for its vital action and thus for its very survival, since if it were simple, all its motions and operations would cease. "[I]t is," she argues,

"the nature of motion that it breaks down and divides something into finer parts." If, therefore, God reduced a creature to a simple, indivisible atom, this atom could no longer act and thus "would be entirely useless in creation, and no better than if it were pure nothingness and non-being."[56] Moreover, in grounding a creature's capacity for vital action, its multiplicity also grounds the relations of sympathy that according to Conway link all of creation. Created beings act through a constant interchange of parts, whereby they send out their own parts to others and incorporate their parts in turn. This interchange of parts explains sympathetic relations that hold between individual creatures, as well as those that hold between the parts of any given creature's body.[57] This aspect of Conway's account further underlines that unlike Leibnizian monads, her creatures—no matter how small—*do* have windows. "All creatures," she maintains, "from the highest to the lowest are inseparably united one to another by their subtler mediating parts," which form the basis for any interaction and productive union between them.[58]

In sum, Conway's account of vital action already takes us closer to an explanation of the sad fate of our lonely atom. For according to it, all genuine creaturely activity involves some internal division of the agent into subtler parts, which it can then exchange with others. However, a simple substance or atom would lack the ability to so, and thus could never truly act or interact. "[A] consideration of the infinite divisibility of everything into always smaller parts," Conway thus concludes, "is not an inane or useless theory, but of the very greatest use for understanding the causes and reasons of things."[59]

5. Cognition as Spiritual Generation

Besides her general account of creaturely activity as vital action, Conway also offers us a more detailed account of their cognitive operations. At its center, we again encounter a version of the multiplicity thesis: "[A]ll cognition," she argues, "requires a variety or multitude as the subject or receptacle of that knowledge." Consequently, our lonely atom could not "see, hear, taste, or feel any other creature," because in order to do so

> it would have to receive an image of this other creature within itself, which it cannot do, because it is only an atom and so small that it cannot receive anything inside itself. For just as the organs of the external senses are composed of many parts, so are the organs of the internal senses.[60]

Both external and internal perception, Conway suggests, require the reception of an image. A simple atom, however, lacking complex organs, would not be able to sense any other creature or object, because it could not "receive anything inside itself."

Once more, the question arises why exactly this should be so. What is it about Conway's account of cognition that requires the perceiving subject to be a complex one? Her views on vital action here again provide some explanation: in order to cognize something external to it, our atom would need to be able to engage in vital motion to receive or send out sensory information. However, lacking parts, it could not engage in such motion, which—as we just saw—always requires both a division into parts and an exchange of them, and thus sense organs that possess the requisite complexity. However, the passage also provides us with a further detail regarding the nature of creaturely cognition, namely that it proceeds via the transmission of "images" (*imagines*) of the objects cognized. But in order to be able receive such images, Conway goes on to emphasize, the perceiving subject needs to be a multiplicity:

> Since there are various objects of our knowledge, and since every objects sends us its own image and that image is a real entity, it follows that we have many images in us, all of which cannot be received in an atom, but that need their own distinct places in us for their distinct form and shape.[61]

All images transmitted, Conway argues here, are "real" extended entities with a specific shape and location. Therefore, no simple, non-extended creature could receive or store them.

An important question raised by this additional element of Conway's view is whether we should regard her as defending a flat-footed "pictorial" theory of perception, according to which perception always literally involves the transmission and reception of imagistic representations or little "copies" of its objects. But even though the *Principles* do not supply us with a highly detailed account of the cognitive processes involved, enough suggests that this is not the case. To be sure, the claim that the images transmitted have a specific "form" (*forma*) or "shape" (*figura*) which the perceiving agent needs to incorporate undoubtedly plays a crucial role within Conway's conception of perception, and goes a long way in accounting for her commitment to the multiplicity thesis. "[S]hape," Conway argues, is "the instrument of life, without which no vital operation could be performed." The extended nature of images in turn necessitates the multiplicity of the percipient, whose particular sense organs—in virtue of themselves being "composed of many parts"—are fitted to receive and incorporate the specific shapes of the images transmitted.[62] However, this emphasis on the specific form or shape of the images involved by itself by no means commits Conway to the view that those images model or copy the objects cognized in a straightforwardly pictorial fashion. Rather, it may merely suggest that the specific physical extension or shape of the parts transmitted carries structural information about the specific objects from which they originate, and which is

in turn fitted to the specific sense organs that receive it. This reading is further supported by the broader seventeenth-century meaning of the term "image" and its Latin counterpart *imago*, which denotes not only pictorial representation, but a much more general sense of "likeness," so that the similarity in question could also be merely structural in nature, or grounded in certain shared features.[63] A closer look at the *Principles* reveals a similarly broad use of the term. Hence, Christ is said to be a "living image" or "likeness" of God insofar as "an image signifies something which has been made visible and which represents and reveals in some unique way the invisible God more than any of his creatures." Similarly, human beings are "images" of God insofar as they instantiate certain divine attributes (most importantly, spirituality or "life").[64]

Finally, note that at least in one instance, Conway equates "image" and "idea," but also clearly does not conceive of all ideas as pictorial.[65] This non-pictorial use of "image" in turn seems to go along well with a further important feature of Conway's account: Her striking claim, forcefully highlighted by Marcy Lascano, that *all* creaturely cognitive operations—not only sense perception, but also all higher cognitive faculties up to the level of abstract thought—involve the transmission and retention of "images," and therefore some degree of materiality and multiplicity.[66] According to Conway, this marks the "great difference" between God and His creatures: God is one, and the entirety of his knowledge, "through which he knows himself as well as other things," is innate. He has "no darkness or corporeality" in himself, nor "any form, image, or figure." By contrast, creatures need to be multiple in order to gain knowledge, which always has some basis in the external world and, Conway further emphasizes, which can only be acquired in collaboration with others.[67]

What commits her to this view? Conway, I would now like to suggest, conceives of all cognition, of sense perception just as of intellection and retention, on the model of a process she terms "spiritual generation." "Every generation and production," she argues, requires the "union and simultaneous operation" of at least two elements: a more active, "male" principle ("spirit") and a more passive, "female" principle ("body"). The latter, she further explains, is required by all productive processes—including all cognitive processes—because all spiritual particles are in need of a "darker," more condensed medium that can retain them.[68] Conway's primary example of spiritual generation is the conception of a child, which for her proceeds not according to the Aristotelian, but according to the Galenic model. Contrary to Aristotle, Galen had argued that both men and women produce semen and can contribute to the bodily and mental characteristics of the child. The male semen, Conway explains, contains a rarefied formative power, while the female semen, as "the purest extract of the whole body," has "a remarkable power of retention." However, both are complex mixtures that contain spiritual (more rarefied) and material (more condensed) parts. Either may thus provide the

dominant spirit whose image is retained by and comes to shape the fetal matter.[69] Here also, the images transmitted in such spiritual generation again seem best thought of non-pictorially, as carriers of a particular type of information. In more contemporary terms, we might think of the images involved in sexual reproduction as the specific DNA carried by the male sperm that shapes the fetal matter by fusing with the "spirits" or "images" (the female DNA) contained therein. Similarly, in the case of vision, the "images" in question may be the particular physical stimuli that are transmitted via a specific arrangement of particles or "shape."

As Sarah Hutton points out, both Francis van Helmont and his father, the physician and chemist Joan Baptista van Helmont, present likely sources for Conway's account.[70] Like Conway, Francis defends a vitalist monism that views all parts of creation as containing both a male and a female principle. Moreover, he also emphasizes the importance of the imagination in shaping and influencing the body, and even argues in his *Spirit of Diseases* that most bodily ailments are psychosomatic in nature.[71] However, the more important source for Conway is likely Francis' father, whose widely received medical views certainly also constituted an important influence on his son.[72] Similar to Conway, J. B. van Helmont describes individuals as inseparable unions of matter and spirit, shaped by an image of their dominant spirit and animated by a vital principle (*archeus influens*). Moreover, as for Conway, the transmission of images through which this vital principle operates is involved in all interactions and communications between creatures and their parts, and occurs via the transmission of a "seed" (*semen*)—a substance containing vital spirits—emanated by an active and received by a passive principle.[73]

But while the elder van Helmont mainly employs spiritual generation to explain the genesis of diseases (via the intrusion of hostile foreign seeds which then shape the body's matter) as well as their possible cures (via the restoration of the original bodily images), Conway puts the theory to more metaphysical use. For her, it provides a basic model for any cognitive process, as well as an account of how—via such processes—particular creatures are individuated. Each individual, she argues, has a "ruling spirit," which—with the help of a number of other subordinate ruling spirits (its cabinet of "ministers")—shapes and structures the body "according to its own ideas and inclinations." It exercises this formative power via the imaginative faculty, which "conceives as strongly as possible its own image, according to which the external body must take shape."[74] Here again, Conway advances and underlines the multiplicity thesis by insisting that not only every individual, but also every individual's ruling spirit must be a multiplicity. This holds true of the human soul, which is conceived of as a complex, highly organized collection of spirits governed and structured by a ruling spirit:

> It should be noted that although the spirit of man is commonly said to be one single thing, this spirit is composed of many spirits, indeed,

> countless ones; and as the body is composed of many bodies and has a certain order and government in all its parts, much more so is the spirit, which is a great army of spirits, in which there are distinct functions (*officia*) under one ruling spirit.[75]

Moreover, she further adds, contrary to what others may have claimed the same also applies to the ruling spirit itself: "But if someone says, it is necessary that a central or ruling spirit be a single atom . . . I answer, no. For this central, ruling, or principal spirit is multiple."[76] Any spirit, including any human soul, Conway thus insists, must be a multiplicity. But why should this be? An important reason, I would like to suggest, is that Conway not only conceives of reproduction and individuation on the cooperative model of "spiritual generation." Rather, she argues that "all productions of the mind" are generated "in the same way." They are, she explains—recalling her discussion of reproductive generation—our mind's "inner children," who are "*all* masculine and feminine; that is, they have a body and a spirit."[77]

We have already encountered spiritual generation's role in sense perception and individuation: whenever we perceive something with our senses, we are exchanging spiritual particles with the bodies that surround us and, via our sense organs, incorporate specific particles or "images" we receive from them. These are taken up and retained by our bodily matter, and, ultimately—via the imagination and the activity of our ruling spirits—come to shape it. This latter element of Conway's account also has an important moral dimension, insofar as she regards the transformations effected by this shaping as the fundamental manifestation of divine justice, which therefore has no need for external punishment or reward.[78] For if we pursue merely objects more base and corporeal than ourselves, we will ultimately be shaped by the images we thus incorporate and become "darker" and more corporeal ourselves, while perceiving more spiritual objects will render us more spiritual.[79] However, not only sense perception and individuation, but all cognitive processes involve the cooperation between a spiritual (male) and a material (female) principle that is the hallmark of spiritual generation. Most straightforwardly, this holds true of any act of memory. Memory, Conway explains, in addition to spiritual images always requires a body that retains "the spirit of the thing conceived of," so that when we remember something we once perceived, "we see within ourselves its image, which is the spirit that proceeded from it." But just like our memories, our thoughts and reflections equally have both "a body and a spirit." For, she further argues, they both involve retention, which necessarily requires a material element.[80]

How so? To begin with, as Lascano emphasizes, for Conway thoughts and reflections, like everything else, have not only spiritual, but also material being: they are "real entities," and thus require a material substratum if they are to be retained by us.[81] Plausibly, one assumption in the background here may be that both types of mental acts indeed often

involve an element of memory. We entertain the same thought across a period of time, form long chains of ideas, or engage in higher-order reflection on a prior notion. But memory, as we just saw Conway argue, requires materiality. In addition, Conway sometimes also appears to hint at a further feature of our mental acts that requires a material substratum, namely that they all involve an element of consciousness awareness or first-order reflexivity (*reflexio*). In one passage, she characterizes the essential activity of the mind as "the light or the eye looking at its own proper image" (*lux sive oculum contemplans propriam suam imaginem*). Such reflexivity, however, she then proceeds to explain, requires a darker, more bodily medium that can reflect and thereby generate the spirit's images, as spirit itself is too diaphanous or ethereal to do so. Hence, just as in the case of the spiritual generation constitutive of reproduction or individuation, the mind, in generating its "internal productions," shapes matter in accordance with its notions or "images." The material principle involved here, which Conway also characterizes as the "semen of our brain" (*semen cerebri nostri*), in turn functions as the "opaque" medium that, in receiving and retaining the respective image, allows the mind to contemplate it, as if "someone sees himself in a mirror."[82]

As with her account of individuation, Conway concludes her discussion of cognition as spiritual generation by stressing the complex nature of both principles at work: "[E]very spirit has its own body and every body its own spirit," and their cooperation is vital for cognition to take place. But in order for spirit and body to be able to cooperate, they need to be able to engage in an exchange of parts, and they need to do so in a coordinated and structured manner. Hence, the bodily principle involved in cognition is in fact "a countless multitude of bodies collected into one and arranged in a certain order," while the spiritual principle is "a countless multitude of spirits united in this body" which also "have their order and government."[83]

6. Conclusion: The Importance of Being Multiple

The preceding discussion of Conway's views regarding causation and cognition has brought a fundamental feature of her conception of creatures into sharper relief: in order to be able to cognize and act, any individual creature needs to be both internally multiple, and an integrated part of a greater multiplicity. No single atom would be capable of action, perception, or change, if, like a Leibnizian monad, it were truly simple and isolated. This strong commitment to what I have labeled the "multiplicity thesis" gives us good reason to not liken Conway's ontology too closely to a Leibnizian metaphysics of monads. Instead, I would now briefly like to suggest in closing, she may be better regarded as conceiving of nature as a holistic system. According to Michael Esfeld, the distinctive feature of such a system is that one or more of the essential properties

of its members is a "holistic" property: a property that is such that no thing or individual can have this property unless there are others together with which it forms a functional whole.[84] Now, insofar as the multiplicity of created beings is essential to their capacity to cognize and act, their essential feature—vitality—precisely appears to be such a property. For without being multiple, and thereby able to participate in the collective interchange of particles that allows Conway's creatures—from the largest animals to the smallest bodily spirits that compose them—to act and perceive, none could engage in the operations that render it alive.

While such a holistic framework need not entail a Spinozistic token monism that regards creatures as mere modes, Conway certainly does place much greater emphasis on collective agency and the fluidity of boundaries between both individuals and species than on the preservation of the unity and substantiality of the "I," as a Leibnizian defendant of the simplicity thesis might.[85] This feature of her view is perhaps most poignantly brought out by her discussion of an individual's ruling spirit, which, we saw, unlike a Leibnizian dominant monad is itself a multiplicity just like the spirits it directs. Its unity, she explains, is simply rendered "more tenacious" so that it may in the end "receive proper rewards for its labor" in accordance with the "universal law of justice" that God has inscribed in everything.[86] But Conway sometimes seems to push her view even further than this. In one passage, for instance, she explains that just as the lines that extend from "every part of the circumference" of a circle meet in and thereby constitute its center, the "central, ruling spirit . . . is called central because all the other spirits come together in it."[87] With this geometric analogy, Conway undermines the idea that by committing oneself to a single ruling spirit, one necessarily commits to the existence of a *simple* spirit that fulfills this function, just as the center of the circle constituted by the meeting lines is not itself a single point, but in fact constituted by the multitude of lines that meet in it. However, the analogy indeed seems to do even more, namely insofar it suggests that—ontologically speaking—a ruling spirit is not even a distinct entity over and above the spirits that compose it, but simply their union (just as the midpoint of a circle is no more than the intersection of all the lines radiating from its circumference). Conway thus here seems to dispel with the idea that there is a *single* distinct ruling spirit at all.[88]

If correct, this result may have significant consequences for both Conway's views regarding the nature of individual agents and the possibility of their salvation. Importantly, it raises the question whether her commitment to the multiplicity thesis ultimately still allows for distinct, stable agents or "souls" that can serve as the loci of moral responsibility. Moreover, it may lead us to wonder what may have compelled Conway to embrace the multiplicity thesis as fully as she does. One possible source of motivation may be the support the multiplicity thesis lends to her case against dualism, insofar as its truth—if independently established—has the potential

to undermine Descartes' central claim that the mind's simplicity allows us to clearly conceive of it as separate from the body. But what may push Conway even more to reject an ontology centered on independent, simple substances is her firm commitment to an Origenist account of universal salvation, which regards every creature as capable of achieving greater perfection by undergoing a series of transformations.

As Hutton has pointed out, Conway's soteriology is heavily underwritten by her physics, insofar as the perfection of a creature is tied to the spirituality of its matter, which it can increase by engaging in its natural operations and motions.[89] Its ability to do so, however, is always dependent on its multiplicity, which in turn grounds its ability to perceive and interact. If therefore, Conway emphasizes, a creature "were entirely limited by its own individuality . . . then no creature could attain further perfection . . . nor could creatures act and react upon each other in different ways."[90] Created beings, we saw, transform and improve by exchanging and receiving new parts through vital action, and shape and reshape their natural bodies through spiritual generation. Both processes, however, require creatures to be internally multiple, and to be united with other creatures into a greater whole. A single atom, we witnessed Conway contend, thus could never engage in any sensation, cognition or any other type of motion, and consequently could never change and perfect itself. In this, she emphasizes, lies the great difference between God and creatures: "For he is one, and this is his perfection, namely, to have need of nothing outside himself. But a creature, because it needs the help of its fellow creatures, must be multiple to receive this help."[91] Without multiplicity, universal salvation must thus remain an impossibility. For while we—despite all our imperfections—can change and are able to improve, we can only do so collectively.[92]

Notes

1. See ST 75.2. For detailed discussion of this argument, see Pasnau 2002, 45–72.
2. A classic version of this argument is Plato's "simplicity" or "affinity" argument in the *Phaedo* (78b-50d). For further discussion, see Apolloni 1996.
3. Indeed, in the eyes of Kant, this is the only true use of the simplicity thesis: "[T]he assertion of the simple nature of the soul has value only insofar as I can thereby distinguish this subject from all matter, and consequently can exempt it from the decay to which matter is always subjected" (KdrV, A 356).
4. CSM II, 59: AT VII, 86. See also CSM II, 9: AT VII, 13.
5. CSM II, 59: AT VII, 86.
6. GP IV, 559–60: NS, 112 (transl. mod.). For further discussion of this argument, see Borcherding 2019.
7. Conway uses the term "spirit" both as a token term, to refer to an individual mind or soul, and as kind term, to denote immaterial (versus material) substance. I will conform to this usage here, using "mind," "soul," and "spirit" interchangeably where appropriate.
8. More, *Immortality*, 8; *An Antidote Against Atheism*, Appendix, ch. 13, §§8–12 (both included in SPW). For further discussion of More's dualism, see Reid 2012, 2003; Leech 2013; Henry 1986.

9. P 3.5.17.
10. P 7.4.54–55.
11. Conway wrote the *Principles* in English in the 1670s, shortly before she died. The work as we have it today has a complicated textual genesis which raises a number of challenges for any interpretation both with regard to its translation and its authorship. The manuscript, now lost, was published posthumously, in Latin translation, in 1690 by Francis Mercury van Helmont, and then retranslated to English by 'J. C.' (the initials likely refer to John Clarke, who also translated van Helmont's *Seder Olam*) and published again in 1692. For a translation of the *Principles* that includes the Latin text, see Peter Loptson's edition [L]. The most recent edition of the book is by Allison Coudert and Taylor Corse [P]. Citations follow Coudert and Corse, and their translation is used unless otherwise noted. References are formatted as follows: *P*[*riniciples*] [*chapter number*].[*section number*].[*page number in the Coudert-Corse edition*]. Hence, P 2.4.13 refers to chapter 2, section 4, p. 13 in Coudert's and Corse's edition of the *Principles*.
12. P 1.1.9; P 7.2.45.
13. P 7.2.45.
14. P 1.3.9; P 3.9.20.
15. For further discussion of Platonist theories of emanation within the context of early modern philosophy, see O'Neill 1993; Schliesser 2013. For further discussion of Cudworth's account, see Hunter 1950; for further discussion of More, see Reid 2012; for a nice overview of both views, see Kringler 2013, 39–52.
16. The natures of God, Christ, and creation differ according to their degrees of mutability: God is essentially immutable, creation is essentially mutable, and Christ is, like God, incapable of changing from good to bad, but also, like creation, capable of further change towards the good. See P 5.2.24.
17. P 5.4–7.26–27. For Conway's definition of intimate presence, see P 7.4.50. Hutton 2004, 197ff., suggests the kabbalistic theology of the Quaker George Keith as a likely influence on Conway's Christology. Like Conway, Keith employs Platonist emanation to describe Christ as the "proper vehicle and conduit" for God's spiritual force, and explains his immediate presence in creatures by appealing to the kabbalistic doctrine of Adam Kadmon, whose soul extends throughout creation. For further discussion of Conway's Christology, see Mercer (forthcoming).
18. P 9.2.63.
19. P 8.4.61.
20. P 6.11.41. See also P 8.4.61; P 8.2.58.
21. P 7.1.41–42.
22. See e.g. P 6.4.30–31 and P 9.5.65 for possible support of a token-monist, and P 9.9.69 for possible support of a type monist only reading.
23. For type monist readings, see Grey 2017; Loptson 1982; Merchant 1979. For token monist readings, see Lascano 2017; Mercer 2015; White 2008. In addition, Gordon-Roth 2018 suggests that we adopt a reading according to which Conway deliberately oscillates between type and existence monism.
24. Merchant 1979. See also Loptson's introduction to Conway 1982; Coudert and Corse's introduction to Conway 1996; Hutton 2004, 234f; Grey 2017.
25. See P 3.9.20. However, as Reid (unpublished manuscript) has recently argued, the passage in question is very likely not by Conway at all, but was later inserted by either van Helmont or Christian Knorr van Rosenroth, and thus does not reflect her own terminology.
26. Merchant 1979, 255–56.
27. Ibid., 263; cf. P 7.4.53.

28. *Leibniz to l'Hopital* (12/22 July 1695): A III.6, 451. Both Wilson 1989 and Becco 1975 emphasize Leibniz's familiarity with the extensive use of the term "monad" by modern Platonists.
29. See, e.g., NE I, i, 1: A VI.6, 72. This parallel is also highlighted by Hutton 2004, 234, who, however, then goes on to claim that like Leibniz, Conway "elaborated her vitalism as a monadology," postulating "monads as simple entities expressive of the unity . . . of God through the simplicity of the individual monad."
30. *Mon*. 69: GP VI, 618.
31. *Leibniz to Burnett* (1697): GP III, 217.
32. See e.g. GP VI, 543–45.
33. P 6.6.33–34; P 6.7.35.
34. P 6.5–6.
35. See also Merchant 1979, 262–63; Hutton 2004, 234.
36. P 3.4–5; see *Mon*. §66.
37. *Mon*. §70; P 7.4.55; P 6.11.39. For a careful exploration of Leibniz's view of monadic domination, see Look 2002; Duarte 2012.
38. *NE* I, i, 11: RB 81. For further discussion, see Julia Jorati's contribution to this volume.
39. P 3.9.20; cf. P 7.4.54.
40. *Mon*. §1–3; see *Theod*. §10.
41. P 3.9.20.
42. P 3.9.18.
43. *Enchiridion metaphysicum*, vol. 1, ch. 9, §3.
44. For further discussion of this line of argument, see Levey 2012.
45. P. 3.9.20.
46. P 7.4.54.
47. P 7.4.53 (transl. mod.).
48. This passage bears some interesting similarities to an argument against materialist atomism in the Appendix to More's *Antidote Against Atheism* (ch. 13, §§7–13; in SPW). However, More's and Conway's dialectical strategies clearly diverge: More, for his part, affirms the existence of physical atoms, but argues against the possibility of their vitality. He then uses this result to establish his vitalist dualism, according to which matter needs to be informed by a vital principle (the "Spirit of Nature"). For Conway, by contrary, the atom's lack of multiplicity and thus vitality ultimately seems to imply the very impossibility of its existence.
49. P 9.9.69. For a discussion of possible sources of Conway's account, see Weichert 2012; Hutton 2004, 200–2.
50. P 9.6.66.
51. P 9.9.69.
52. Ibid. For further discussion of the mediating role of Christ, see Weichert 2012, 165–70.
53. P 9.6.66; P 9.9.67. As Hutton (2004, 201) notes, the medieval term *virtualis* has its roots in the Latin terms *vis* ("power") and *virtus* ("excellence"), thus suggesting "both inherent properties and a capacity to exert influence through those properties."
54. P 9.9.67.
55. P 8.5.61.
56. P 3.9.20.
57. P 7.3.53; see P 6.8.36–37.
58. P 3.10.20. For seventeenth-century Platonists such as More and Cudworth, sympathy plays an important role as a universal principle uniting the world

(see, e.g., SPW 126). For further discussion of Conway's notion of sympathy, see Mercer 2015.

59. P 3.10.20.
60. P 7.4.54 (transl. mod.).
61. Ibid.
62. P 9.8.67.
63. I am grateful to Dominik Perler for highlighting this point to me.
64. P 5.4.25; P 4.2.21–22; P 6.6.34; P 6.7.36.
65. P 6.11.39, cf. P 6.3.30.
66. See Lascano 2013. It is interesting to note that More, despite his dualism, like Conway insists on the embodied nature of all cognitive operations. For further discussion of More's reasons for holding this claim—which differ markedly from Conway's—see Reid 2012, 359–60.
67. P 7.4.54; P 1.6.10.
68. P 6.11.38. See also Lascano 2013, 330. While the male–female contrast introduced here may seem to reiterate traditional dichotomies (see Frankel 1991), it could also be read in a more subversive spirit, as Conway immediately proceeds to clarify that "it is not as essential property of anything to be a body, just as it is not a property of anything to be dark" (P 7.4.54). The use of gendered language also seems to emphasize the generative character of all causal processes.
69. P 6.11.39. For a detailed discussion of Conway's account of sexual generation, see Boyle 2006. On the Galenic theory in contrast to the Aristotelian view, see Boylan 1986.
70. See Hutton 1996, 2004, 141ff.
71. Hutton 1996, 140–53.
72. While Joan Baptisa van Helmont is never mentioned by Conway directly, many of his works had been translated, and she was very likely aware of them due to her friendship with his son.
73. For references and a detailed discussion of van Helmont's views, see Pagel 1982.
74. P 6.7.36.
75. P 7.4.53. Both van Helmonts similarly couch their descriptions of the archeus or ruling spirit in political terms. See Pagel 1982, 98, and F. M. van Helmont, *The Spirit of Diseases*, §33: 56.
76. P 7.4.55.
77. P 6.11.39 (my emphasis). Here again, Conway could be read as subverting the traditional conception of reason as masculine.
78. P 6.8.35–36. For an extended discussion of this point, see Lascano 2013, 330–33.
79. P 6.7–9.35–37.
80. P 6.11.38–39.
81. Lascano 2013, 332; see P 6.11.39.
82. P 6.11.38–39.
83. P 6.11.39.
84. See Esfeld 2001, 1–27.
85. Whether Spinoza himself in fact defended such a strong monism is subject to some scholarly controversy. For further discussion, see e.g. Carriero 2002.
86. P 7.4.55. While more in line with Christian orthodoxy, this claim also seems to be in tension with Conway's earlier pronouncement that the excellency of divine justice finds its foremost expression in the natural transformations of creatures since they eliminate the need for external punishment and reward (see P 6.8.36).

87. P 7.4.55.
88. I am grateful to John Callanan for very helpfully pressing me on this point.
89. See Hutton 1996 for this claim and further discussion of Origenist elements in Conway and More.
90. P 6.5.32.
91. P 7.4.54.
92. In this spirit, I would like to thank Maria Rosa Antognazza, Sebastian Bender, James Bryson, John Callanan, Clare Carlisle, John Grey, Matthew Leisinger, Dominik Perler, Jasper Reid, and the audiences at the King's College History of Philosophy Seminar and the D-Society Research Seminar Cambridge for all their helpful comments and suggestions, which collectively much improved this chapter.

Literature

Apolloni, David. "Plato's Affinity Argument for the Immortality of the Soul." *Journal of the History of Philosophy* 34 (1996): 5–32.

Aquinas, Thomas. *Summa Theologiae: Complete English Edition in Five Volumes*. Notre Dame: Ave Maria Press, 1947–48. [ST].

Becco, Anne. *Du simple selon G. W. Leibniz*. Paris: Vrin, 1975.

Borcherding, Julia. "Reflection, Intelligibility, and Leibniz's Case Against Materialism." *Logical Analysis and the History of Philosophy* 21 (2019): 44–68.

Boylan, Michael. "Galen's Conception Theory." *Journal of the History of Biology* 19 (1986): 47–77.

Boyle, Deborah. "Spontaneous and Sexual Generation in Conway's Principles." In *The Problem of Animal Generation in Early Modern Philosophy*, edited by Justin E. H. Smith, 175–93. Cambridge: Cambridge University Press, 2006.

Carriero, John. "Monism in Spinoza." In *Spinoza: Metaphysical Themes*, edited by Olli Koistinen and John Biro, 38–59. Oxford and New York: Oxford University Press, 2002.

Conway, Anne. *The Principles of the Most Ancient and Modern Philosophy*. Edited and translated by Peter Loptson. The Hague: Martinus Nijhoff, 1982. [L].

———. *The Principles of the Most Ancient and Modern Philosophy*. Edited and translated by Allison Coudert and Taylor Corse. Cambridge: Cambridge University Press, 1996. [P].

Descartes, René. *The Philosophical Writings of Descartes*. Edited and translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny, 3 vols. Cambridge: Cambridge University Press, 1985. [CSM(K)].

Duarte, Shane. "Leibniz and Monadic Domination." *Oxford Studies in Early Modern Philosophy* 6 (2012): 209–48.

Esfeld, Michael. *Holism in Philosophy Mind and in Philosophy of Physics*. Dordrecht: Springer, 2001.

Frankel, Lois. "Anne Finch, Viscountess Conway." In *A History of Women Philosophers*, edited by Mary Ellen Waithe, vol. 3, 41–58. Dordrecht: Kluwer, 1991.

Gordon-Roth, Jessica. "What Kind of Monist is Anne Finch Conway?" *Journal of the American Philosophical Association* 4 (2018): 280–297.

Grey, John R. T. "Conway's Ontological Objection to Cartesian Dualism." *Philosophers' Imprint* 17 (2017): 1–19.

Helmont, Francis Mercury van. *A Cabbalistical Dialogue*. London: Benjamin Clarke, 1684.

———. *The Spirit of Diseases or Diseases from the Spirit*. London: Sara Howkins, 1694.

Henry, John. "A Cambridge Platonist's Materialism: Henry More and the Concept of Soul." *Journal of the Warburg and Courtauld Institutes* 49 (1986): 172–195.

Hunter, William B. "The Seventeenth Century Doctrine of Plastic Nature." *The Harvard Theological Review* 43 (1950): 197–213.

Hutton, Sarah. "Henry More and Anne Conway on Preexistence and Universal Salvation." In *'Mind Senior to the World'. Stoicismo e origenismo nella filosfia platonica del seicento inglese*, edited by Marialuisa Baldi, 113–26. Milan: Francoangeli, 1996.

———. *Anne Conway. A Woman Philosopher*. Cambridge: Cambridge University Press, 2004.

Kant, Immanuel. *Critique of Pure Reason*. Edited by Paul Guyer and Allan Wood. Cambridge: Cambridge University Press, 1998. [*Kritik der reinen Vernunft* = KdrV].

Kringler, Insa. *Die gerettete Welt. Zur Rezeption des Cambridger Platonismus in der europäischen Aufklärung des 18. Jahrhunderts*. Berlin and Boston: De Gruyter, 2013.

Lascano, Marcy P. "Anne Conway: Bodies in a Spiritual World." *Philosophy Compass* 8 (2013): 327–38.

———. "Anne Conway on Liberty." In *Women and Liberty, 1600–1800: Philosophical Essays*, edited by Jacqueline Broad and Karen Detlefsen, 343–74. Oxford and New York: Oxford University Press, 2017.

Leech, David. *The Hammer of the Cartesians: Henry More's Philosophy of Spirit and the Origins of Modern Atheism*. Leuwen: Peeters, 2013.

Leibniz, Gottfried W. *Sämtliche Schriften und Briefe*. Edited by Deutsche Akademie der Wissenschaften. Berlin: Akademie Verlag, 1923. [A].

———. *Die Philosophischen Schriften von Leibniz*. Edited by Carl Gerhardt, 7 vols. Berlin: Weidmann, 1875–90; reprint Hildesheim: Olms, 1965. [GP].

Levey, Sam. "On Unity, Borrowed Reality and Multitude in Leibniz." *The Leibniz Review* 22 (2012): 97–134.

Look, Brandon. "On Monadic Domination in Leibniz's Metaphysics." *British Journal for the History of Philosophy* 10 (2002): 379–99.

Mercer, Christia. "Seventeenth-Century Universal Sympathy: Stoicism, Platonism, Leibniz, and Conway." In *Sympathy: A History*, edited by Eric Schliesser, 108–39. Oxford and New York: Oxford University Press, 2015.

———. "Anne Conway's Metaphysics of Sympathy." In *Feminist History of Philosophy: The Recovery and Evaluation of Women's Philosophical Thought*, edited by Eileen O'Neill and Marcy Lascano. New York: Springer, forthcoming.

Merchant, Carolyn. "The Vitalism of Anne Conway: Its Impact on Leibniz's Concept of the Monad." *Journal of the History of Philosophy* 7 (1979): 255–69.

More, Henry. *Enchiridion Metaphysicum*. London: E. Flesher, 1671.

———. *A Collection of Several Philosophical Writings*. London: Joseph Downing, 1712. [SPW].

O'Neill, Eileen. "Influxus Physicus." In *Causation in Early Modern Philosophy. Cartesianism, Occasionalism, and Pre-Established Harmony*, edited by Steven Nadler, 27–56. University Park, PA: Pennsylvania State University Press, 1993.

Pagel, Walter. *Joan Baptista van Helmont: Reformer of Science and Medicine*. Cambridge: Cambridge University Press, 1982.

Pasnau, Robert. *Thomas Aquinas on Human Nature. A Philosophical Study of Summa Theologiae 1a 75–89*. Cambridge: Cambridge University Press, 2002.

Reid, Jasper. *The Metaphysics of Henry More*. Dordrecht: Springer, 2012.

———. "Henry More on Material and Spiritual Extension." *Dialogue* 42 (2003): 531–558.

———. "Anne Conway and Monads." (unpublished manuscript).

Schliesser, Eric. "Newtonian Emanation, Spinozism, Measurement and the Baconian Origins of the Laws of Nature." *Foundations of Science* 18 (2013): 1–19.

Weichert, Ulrike. "*Actio Vitalis*. Anne Conways Metaphysik der lebendigen Bewegung." In *Anne Conways Principia Philosophiae. Materialismuskritik und Alleinheits-Spekulation im neuzeitlichen England*, edited by Christian Hengstermann and Ulrike Weichert, 151–70. Berlin: Verlag Dr. W. Hopf, 2012.

White, Carolyn Wayne. *The Legacy of Anne Conway (1631–1679). Reverberations from a Mystical Naturalism*. Stony Brook: Suny Press, 2008.

Wilson, Catherine. *Leibniz's Metaphysics. A Historical and Comparative Study*. Princeton, NJ: Princeton University Press, 1989.

7 Cavendish on Material Causation and Cognition

David Cunning

1. Introduction

Like other philosophers of her era, Cavendish tackles the vexing question of what is going on when a body moves or changes its behavior and properties as a result of the behavior of another body. On the surface the question does not appear to be vexing at all—a body strikes a second body, and that body takes on new motion and new features. But a philosopher—and especially, a seventeenth-century philosopher—would remind us that things are not always as they seem: qualities like color and sound are not literally in objects, at least not in anything like the way that we perceive them[1]; the individual entities that we thought were freestanding substances are actually modes of God;[2] there is no empty space, and the apparent gaps between objects are in fact densely packed (if often fluid) bodies[3]; possibilities are nothing more than ideas in the mind of God[4]; creatures are spiritual emanations of the divine substance, and thus there is no such thing as matter[5]; God is an eternal and immutable being who has eternally and immutably decreed all that is and ever will be.[6]

In the case of Cavendish, we encounter theses pertaining to motion and causation that are not particularly commonsensical but that she supposes in the final analysis make much more sense than any alternative. One such thesis is that a body never transfers its motion to another body. Cavendish holds that the motion of a body is always inseparable from that body, and so the only way for a body to add motion to a second body is for the first body to add some of its matter to that body also. The thesis that a body never transfers its motion to another body is at the core of Cavendish's account of causation, and it will inform her view on the causal processes that are involved in cognition as well.

A number of other theses will inform Cavendish's account of causation also—a fully materialist view of nature; an animist view of bodies as active and intelligent; a view of nature as a plenum; and a view of bodies as largely cooperative and largely free. All of these theses will be examined in this chapter.

2. The Materialist Framework

Cavendish posits a materialist metaphysics according to which even thinking is wholly material. *Human* thinking is clearly material, she argues: we intelligently guide our bodies from place to place, and since our minds move with our bodies and have features like location and motion, our minds are material as well:

> Though Matter might be without Motion, yet Motion cannot be without matter; for it is impossible (in my opinion) that there should be an Immaterial Motion in Nature.[7]
>
> I cannot conceive how it is possible, that . . . the Soul, being incorporeal, can walk in the air, like a body; for incorporeal beings cannot have corporeal actions, no more then corporeal beings can have the actions of incorporeals.[8]

Cavendish offers additional arguments for her materialist and anti-Cartesian view on the nature of thinking,[9] but here she is arguing that it is uncontroversial that human minds move from place to place with the bodies that they guide, and since there is no such thing as immaterial motion, minds are material themselves.

Cavendish then supposes that because the bodies that surround us engage in behavior that is purposive—and exhibit order and sophistication—they are guided by thought also. She indeed sees intelligence and organization all around her:

> there be Sense and Reason, which is not onely Motion, but a regular and well-ordered self-motion, apparent in the wonderful and various Productions, Generations, Transformations, Dissolutions, Compositions, and other actions of Nature, in all Natures parts and particles.[10]
>
> if there were not Knowledg in all Generations or Productions, there could not any distinct Creature be made or produced.[11]

Other philosophers at the time—for example Henry More, Ralph Cudworth, and Nicolas Malebranche—had taken it as a datum that the order and organization in the natural world is guided by mentality, but by *immaterial* mentality.[12] Cavendish supposes instead that bodies themselves are active and alive on their own. She writes,

> I cannot imagine why God should make an Immaterial Spirit to be the Proxy or Vice-gerent of his Power, or the Quarter-master General of his Divine Providence, as your Author [Henry More] is pleased to style it, when he is able to effect it without any Under-Officers, and

> in a more easie and compendious way, as to impart immediately such self-moving power to Natural Matter, which man attributes to an Incorporeal Spirit.[13]

Cavendish is responding to and rejecting a tradition according to which matter is inert, passive, unintelligent—an extremely low-grade being. In the face of any empirical evidence that bodies are in fact more sophisticated, the tradition would respond that because bodies by nature are at the bottom of the hierarchy of being, they must be accompanied in the relevant cases by *non*-bodies, and so the prospect of a counter-example would be regarded as straightforwardly incoherent.[14] But Cavendish looks around and sees a very different world—one that is full of life, activity, and intelligence. It is not just the human being who is a locus of intelligence and skill:

> nay, the knowledg of other Creatures many times gives information to Man: As for example; the *Egyptians* are informed how high the River *Nilus* will rise by the Crocodil's building her nest higher or lower, which shews, that those Creatures fore-see or fore-know more then Man can do: Also many Birds fore-know the rising of a Tempest, and shelter themselves before it comes: the like examples might be given of several other sorts of Animals.[15]

Cavendish sees intelligence in the whole spectrum of creatures. Creativity, sophistication, and know-how are ubiquitous, she supposes, also manifesting in natural productions like cells, organs, plants, and trees.[16] Indeed, one of the reasons that undergirds her (infamous) view that artefacts like scientific instruments are less effective and more suspect than the products of non-human handiwork is that the bodies that constitute a human production are thrown together with less time and patience, whereas natural products are collections of bodies that have a longer history of interaction—of perceiving and knowing each other's sinews and joints.[17]

Bodies are active, knowledgeable, and communicative, according to Cavendish, and they are also largely cooperative. They communicate with the bodies that surround them how to coordinate their behavior, and for most part that behavior is mutually agreeable. She speaks, for example, of uncontroversially natural entities like bees and ants, which work in unison as a group to preserve their society in ways that benefit individual and group both. She speaks similarly of the way in which the parts of a single individual (like a human body) cooperate toward the goal of maintaining the unity and integrity of the whole. An individual is always a kind of society, for Cavendish, and for the most part the elements of a society work together to maintain the cohesion of the group.[18]

Bodies tend to cooperate, Cavendish supposes, but she recognizes of course that sometimes they do not:

> some [creatures or parts of nature] may over-power others, as the fire, hammer and hand doth over-power a Horse-shoe, which cannot prevail over so much power and strength: And so likewise it is with sickness and health, life and death; for example, some corporeal motions in the body turning Rebels, by moving contrary to the health of an animal Creature, it must become sick; for not every particular hath an absolute power, the power being in the Infinite whole, and not in single divided parts.[19]
>
> such agreeable Motions in one part or Creature, as do cause a Fancy, love and desire to some other part or Creature; and Antipathy, when these Motions are disagreeable, and produce contrary effects, as dislike, hate, and aversion to some part or Creature. And as there are many sorts of such motions, so there are many sorts of Sympathyes and Antipathyes, or Attractions and Aversions, made several manners or ways.[20]

Here Cavendish is capturing the sort of situation where (as she would describe it) an intelligent body communicates with another body how it would like that body to move, but the body resists. Bodies *tend* to cooperate, Cavendish supposes, especially in cases where each individual benefits from the health and well-being of the society as a whole. We have seen her description of the behavior of bees and ants, for example. Each individual is no doubt interested in their *own* preservation, but the members of some if not most groups are wise enough to appreciate that the power and health of the group is tantamount to the power and health of the individual—to the point that the distinction between self-interest and other-interest can be difficult to draw. An exception, she is famous for arguing, is the human being: we often do things to distinguish ourselves from the group and to rise above its other members—to secure *fame*, in a way that results in harm to the larger collective and then (very likely) in harm to ourselves.[21]

3. Animate vs. Inanimate Matter

Cavendish takes bodies to be active and knowledgeable, with an important qualification. She holds that in the final analysis there are three kinds of matter, one of which is inanimate, but all of which enter into trifold composites that are always active. One kind of matter whose existence we know very well, Cavendish supposes, is rational matter—which is the intelligent, creative, and rapidly moving sort of matter that composes (among other entities) the ideas in our own thought. We have imaginative and inventive ideas, and we witness the way in which these quickly

combine together and then just as quickly disband in the course of a bout of thinking. As a materialist about ideas and mind, Cavendish holds that ideas are bodies and are composed for the most part of rational matter. However, if all bodies contained as much rational matter as our ideas, the things that surround us would go in and out of existence suddenly and quickly also. But they do not, and so there is matter that is less active. Cavendish remarks,

> there was not only an animate or self-moving and active, but also an inanimate, that is, a dull and passive degree of matter; for if there were no animate degree, there would be no motion, and so no action nor variety of figures; and if no inanimate, there would be no degrees of natural figures and actions, but all actions would be done in a moment, and the figures would all be so pure, fine and subtle, as not to be subject to any grosser perception, such as our human, or other the like perceptions are.[22]

Some of the bodies in the natural world are composed largely of rational matter—for example some of the ideas in human minds, and the bodies in our environment that are purposive—but not all bodies. If they were, they would go in and out of existence much more quickly than they in fact do. In the same way that a human being can easily imagine an island, or a cloud, or a house, and then tear these down and quickly replace them with something else, the bodies that we encounter outside of our thought would be much more temporary if they were not more heavily composed of at least one other kind of matter as well. Cavendish accordingly posits *inanimate* matter, which she supposes to exist in combination with rational matter and which plays a very important role in slowing things down. As she puts it, if there were no inanimate matter, then "all actions would be done in a moment." Inanimate matter has no motion in its own right. It only moves when it is part of a larger moving composite—that is, when inanimate matter is conjoined with or surrounded by animate bodies—but it is absolutely motionless in itself.[23]

There is inanimate matter and rational matter, Cavendish supposes, but in addition there must be a third kind of matter that is active but that is not rational matter. Something has to account for the organization and order of the bulk of the bodies in nature, for there are composite bodies that are active but that rational matter is too quick and unbridled to move and guide. This second kind of animate matter is *sensitive* matter. Animate matter is either rational or sensitive, for Cavendish, and the macroscopic bodies that surround us are always a hybrid of both kinds of matter together with inanimate matter.[24] Strictly speaking, all bodies are a blending of the three kinds of matter, with combinations of more and less, even the bodies that compose our (slow to quickly unfolding) ideas. The rationality and sensitivity of animate matter do not simply reduce to

the velocity of that matter, for a body could no doubt move very quickly but in a way that is not intelligent or organized. For example, one of the marks of rational matter is its speed and agility, Cavendish supposes, but rational matter is also intelligent and creative in a way that accounts for the organization that we notice bodies—in our thought, and in the bodies that surround us.

We are now in a position to consider Cavendish's view of causation. Cavendish holds that the natural universe consists of bodies that are active, knowledgeable, communicative, and perceptive. A striking tenet of her metaphysics is the doctrine that although bodies make a difference in each other's motion and behavior, motion is never transferred from one body to the next. Instead, the apparent transfers of motion that we witness on a daily basis are more than meets the eye. Consider a couple of standard passages in which she describes what happens when, for example, a hand moves a bowl:

> motion cannot be transferred without matter, as being both inseparably united, and but one thing; I cannot think it probable, that any of the animate or self-moving matter in the hand, quits the hand, and enters into the bowl; nor that the animate matter, which is in the bowl, leaves the bowl, and enters into the hand, because that self-moving substance is not readily prepared for so sudden a Translation or Transmigration.[25]
>
> That is the reason, which denies that there can be a translation of motion out of the moving body into the moved; for questionless, the one would grow less, and the other bigger, that by loosing so much substance, this by receiving.
>
> (Ibid., 447)

According to Cavendish, and this does not seem to be an unreasonable view on its face, any given motion is always the motion *of* a body, and consequently is inseparable from that body. Motion does not hop from one body to the next, and in cases where a second body does acquire new motion from a first body, the second body must also acquire some of that body's substance. The second body acquires motion that is new to it, but only because it acquires the bit of substance to which that motion is inseparably bound.[26] Cavendish allows that a body often makes a contribution to a change in the motion of the second body, and in some passages she will describe the first body as an *occasional* cause—for example,

> Whensoever I say, that outward objects work or cause such or such effects in the body sentient; I do not mean, that the object is the onely immediate cause of the changes of those parts in the sentient body; but that it is onely an external or occasional cause, and that the effects in the sentient proceed from its own inherent natural motions.[27]

Still, we will need to be very careful in how we understand the notion of an occasional cause in the philosophy of Cavendish. Other philosophers in her era are known as occasionalists, most notably Nicolas Malebranche,[28] but as we will see Cavendish has a unique view that falls out of her own specific commitments.

Cavendish holds that the motion of a body is always inseparable from it. If she is correct, then bodies that appear to acquire motion from other bodies, but that do not grow bigger, do not in fact acquire any new motion, even if they move differently than they did before. They move by way of motions that they had all along, but that are now differently directed. Cavendish indeed holds that whatever motions a body ever exhibits are motions that it had within it for its entire duration:

> though a particular motion doth not move in that same manner as it did before, nevertheless it is still there, and not onely there, but still moving; onely it is not moving after the same manner as it did move heretofore, but has changed from such a kind of motion to another kind of motion, and being still moving it cannot be said to cease: Wherefore what is commonly called cessation from motion is onely a change of some particular motion, and is a mistake of change for rest.[29]
>
> when a man for example shakes his hand, and when he leaves shaking, whether is that motion gone (say others) no where, for that particular motion ceaseth to be, say they. I answer, that my reason tells me, it is neither fled away, nor ceased to be, for it remains in the hand, and in that matter that created the hand, that is in that, and the like innated matter, that is in the hand. But some will say, the hand never moves so again, but I say the motion is never the lesse there, they may as well say, when they have seen a Chest full of Gold, or the like, and when their eyes are shut, or that they never see it more, that the Gold doth not lie in the Chest, although the Gold may lie there eternally . . . So likewise particular motions are, but shewed, not lost, or Annihilated.[30]

Here Cavendish is reasoning with an eye to her view that in the natural world nothing can ever come from nothing, or be reduced to nothing. She writes for example that

> it is as difficult for Nature to turn something into nothing, as to Create something out of nothing; Wherefore as there is no annihilation or perishing in Nature, so there is neither any new Creation in Nature.[31]
>
> there can be nothing lost in nature.[32]

Cavendish of course allows that composite beings perish, but she supposes that the bodies out of which those beings are made are eternal. As

we have seen, she holds that the motion of a body is inseparable from that body, and so no body can ever be separated from its motion, or lose that motion. Nor can a body ever gain any motion, unless it also gains some substance. For new motion to be added to a body, that motion has to be the motion *of* a body, and it is only added to a second body if its matter is added as well. But in that case it is not a generation of new motion but just a transfer of a bit of substance along with the motion that is inseparable from that substance.

To return to the example of the bowl that appears to obtain new motion as the result of the behavior of a hand, Cavendish has to say (and is happy to say) that the bowl does not in fact acquire new motion. It might head in a new direction as a result of the way that the hand pushes it, but the bowl does not thereby increase its mass, and so it does not increase its amount of motion either. Instead, its existing motions are redirected.[33] In some instances, the redirection of motion in a body is not especially welcome:

> Nature's Parts move themselves, and are not moved by any Agent. Secondly, Though Nature's Parts are Self-moving, and Self-knowing, yet they have not an infinite or uncontroulable Power; for, several Parts, and Parties, oppose, and oft-times obstruct each other; so that many times they are forced to move, and they may not when they would.[34]
>
> that creature which hath the advantage of strength, subtilty, or policy, shape, or figure, and the like, may oppose and over-power another which is inferior to it, in all this; yet this hinderance and opposition doth not take away self-motion.[35]

In these passages Cavendish uses the language of force and over-powering to describe the way in which a body will sometimes make another body do something. The first body communicates with the second body about how it would have that body move, she supposes, but the communication is not just a firm directive that the second body could easily opt to ignore. The communication is not the analogue of a strongly worded letter. Instead, the second body is forced to change its motions as a result of the motions of the first. In some cases a second body resists the motions that are occasioned by the first, but in other cases the redirection of motion *is* welcome. Here Cavendish would have us consider the bulk of the interactions that we encounter in the natural world, in which bodies tend to cooperate with each other in ways that benefit both individual and group. Ants coordinate their behavior for the sake of the larger colony; bees adjust their movements in unison and without resistance, to promote the flourishing of the hive; natural productions are composed of parts that have a long history of collaboration and that work together seamlessly to achieve results that artefacts cannot. One of Cavendish's

critiques of artifice, and of the medicinal arts in particular, is again that physicians and researchers shortcut and bypass the knowledge and cooperation that are ubiquitous in nature; they jumble together cures that come with a tremendous amount of promise, but that do not live up to the task.[36]

If we take seriously Cavendish's doctrine that motion cannot be transferred from one body to the next, her occasionalist view of causation makes quite a lot of sense. In a case where a body causes a change in the behavior of another body, the second body plays a very active role—always moving by motions that are internal to it. The second body plays an active role, she supposes, but so does the first. The first body impacts the direction of the motion in the second body, without which the second body would not engage in the new behavior that it takes on. Cavendish writes,

> As for *Chance*, it is the visible Effects of some hidden Cause; . . . for, the conjunction of sufficient Causes, doth produce such or such Effects; which Effects could not be produced, if any of those Causes were wanting.[37]

A body has the amount of motion that it does, and that is the amount of motion that it has both before and after another body comes along and changes the direction of some of that motion. When such a body does come along, it does not add any new motion to the impacted body—that is unintelligible—but it does affect the direction of motion of the second body. A body that is the occasional cause of the change of motion of a second body is the sufficient cause of that change of motion, Cavendish indicates in the above passage, which is to say that the presence of the occasional cause (along with the existing motions of the second body) guarantees the existence of the resultant motions of the second body. She adds for good measure—these motions would not be produced were it not for the contribution of the occasional cause. In some cases, the affected body welcomes the change in motion that is caused by the first, and in some cases the second body is resistant.

We have seen a number of examples that Cavendish presents along both of these lines, and we can also construct a few of our own. One is the case where a pair of dancers are each the source of their own motion, but they seamlessly follow each other's lead. The second dancer moves by way of his or her own internal motions, responding to the lead dancer's signal, as they both cooperate toward the achievement of a skilled routine. A similar case might be that of a police officer who escorts a criminal to the police station after the criminal has turned himself in. A very different example is that of the criminal who is captured and does not cooperate on the way to the station: the self-motion of the criminal adds to the self-motion of the officer, and the motion of the larger officer-criminal

composite is stumbling and awkward. This is similar to the case of the child who announces that they are not ready to leave the playground or pool, despite a parental ultimatum to the contrary. The parents carry the child to their vehicle, but the child uses its internal motions to become the equivalent of a noodle, and the trip home is difficult indeed. The internal self-motion of the unwilling child and the criminal are the equivalent of a vector of force that makes the relevant composite move much more slowly than it does in the case in which a moved individual is willing and compliant.[38]

4. Causation and Freedom

Cavendish holds that when one body is the occasional cause of a change of motion in a second body, the first body does not add any new motion to the second body, even if it redirects the motion that that body already has. In some cases the second body resists the workings of the second body, but in some cases (and indeed Cavendish supposes in a lot of cases) it cooperates with that body and works in unison with it to achieve goals that serve both. Cavendish also holds that the bodies of nature tend to be free in their interactions with each other, and commentators have disagreed quite vehemently about the nature of the freedom in question. Some have argued that Cavendish holds that bodies possess libertarian freedom and that when an occasional cause brings about a change of motion in a second body, the body exhibits that change of motion because it has exercised its libertarian freedom to do (or not do) so.[39] Other commentators have argued that Cavendish holds that bodies are free in a compatibilist sense.[40] Here it will be argued that the Cavendish texts and also larger philosophical considerations suggest that Cavendish does not subscribe to a libertarian view of freedom. When a body is the occasional cause of a change of motion in a second body, the second body is behaving *freely* in cases where it welcomes that change in motion and does not resist it. Bodies tend to be free, Cavendish thinks, but this is just an indication of the way that bodies for the most part act in unison and are cooperative. The presence of an occasional cause is always sufficient to bring about its effect, Cavendish supposes, and a free body never has a libertarian "ability to do otherwise." Or so it shall be argued below.

Cavendish certainly holds that bodies tend to be free. She says for example:

> every Self-moving Part, or Corporeal Motion, have free-will to move after whatever manner they please.[41]
>
> this Free-will proceeds from God, who hath given her both will and power to act freely.[42]

Cavendish holds that creatures are generally speaking free, but we must be careful what we build into that conclusion. First, she does not use the

explicit language of free choice or decision in characterizing the way that a body responds to an occasional cause. As we have seen, she disagrees with Descartes about whether or not thinking is immaterial, but she also disagrees with his view that all thinking is highly conscious and that the active faculty of a finite mind is its conscious faculty of will in the course of making a judgment.[43] More broadly, she disagrees with Descartes about how to characterize and describe the spectrum of activity that is properly identified as mental and cognitive. With at least a few other philosophers in the seventeenth century, Cavendish posits that much of the cognition that takes place in the creaturely realm is not particularly conscious at all. To start with human cognition, she supposes that although some of what takes place in our minds is conscious, much of what happens there is not. She speaks in particular of the knowledge that guides our bodies when we engage in a behavior at which we are very skilled:

> there is a wise saying, think first, and speak after; and an old saying that many speak first, and think after; and doubtlesse many, if not most do so, for we do not always think of our words we speak, for most commonly words flow out of the mouth, rather customarily then premeditatedly, just like actions of our walking, for we go by custome, force and strength, without a constant notice or observation; for though we imagine our ways, yet we do not ordinarily think of our pace, nor take notice of every several step; just so, most commonly we talk, for we seldom think of our words we speak, nor many times the sense they tend to.[44]
>
> one part of a mans body, as one hand is not less sensible then the other, nor the heel less sensible then the heart, nor the legg less sensible then the head, but each part hath its sense and reason, and so consequently its sensitive and rational knowledge; and although they cannot talk or give intelligence to each other by speech, nevertheless each hath its own peculiar and particular knowledge.[45]

Here Cavendish is pointing to what she regards as a kind of intelligence that is present when bodies behave skillfully in the absence of any conscious mentality to guide the way. In speaking of the bodies of nature more generally, she will say that bodies communicate and respond to each other, and she will also say that they do so freely or forcedly depending on how things pan out, but she is not necessarily positing a deliberate act of choice in such cases. Indeed, one of the most oft-recurring examples that she cites of an entity that communicates is the example of a hand (in its movement of a bowl). A hand might communicate to a bowl how it would have the bowl move, and two dancers might communicate in the course of executing routine, but that is not to suggest the presence of conscious libertarian choices throughout.

Libertarian readers of Cavendish would of course have a lot more to say to motivate the view that Cavendish holds that bodies are in possession of an ability to do otherwise. One of the central arguments that has been advanced in support of the libertarian interpretation is that Cavendish holds that there are true irregularities and disorders in nature and that such irregularities are the result of creatures exercising libertarian freedom to depart from the norm.[46] There are a number of texts in which Cavendish posits disorder and irregularity. She writes for example that:

> Nature poysing her Actions by Opposites, there must needs be Irregularities, as well as Regularities; which is the cause that seldom any Creature is so exact, but there is some Exception.[47]

However, there is another set of texts in which Cavendish overtly denies that there are irregularities and specifies that whenever she *does* use the term "irregularity," it is to pick out things that are unusual or that run counter to our expectations and hopes. She writes:

> there cannot be confusion amongst those parts of Nature, but there must be a constant union and harmony betwixt them; for cross and opposite actions make no confusion, but onely a variety; and such actions which are different, cross and opposite, not moving always after their usual and accustomed way, I name Irregular, for want of a better expression; but properly there is no such thing as Irregularity in Nature.[48]
>
> Nevertheless, all these motions, whether regular or irregular, are natural; for regularity and irregularity hath but a respect to particulars, and to our conceptions, because those motions which move not after the ordinary, common or usual way or manner, we call Irregular.[49]

Some commentators have argued that even though these passages have Cavendish stating quite clearly that there are no irregularities in nature, the passages are outnumbered by the passages in which she posits irregularities, and that on balance the textual evidence suggests that Cavendish subscribes to a "True Disorders" view.[50] The passages in question are not necessarily competing, however. It would be one thing if in X number of passages Cavendish posited the existence of irregularities, and if in a smaller number of passages she denied the existence of irregularities. In that case, we might argue that her considered view is the one that she states most often and that her expression of the contrary view is just an unfortunate hiccup. But Cavendish is in fact proceeding quite differently. In the smaller number of passages, she states that there are absolutely no irregularities, and in the same breath she notifies us that in passages in which she *does* posit an "irregularity" she is using that term to describe

things that are unusual or that run counter to our expectations. Indeed, she supposes that this is how we all tend to use the term:

> These motions and actions of Nature, since they are so infinitely various, when men chance to observe some of their variety, they call them by some proper name, to make a distinguishment, especially those motions which belong to the figure of their own kind; . . . when they will express the motions proper for the Consistence, Continuance and Perfection of their Figure, they call them Health; but when they will express the motions contrary to these, they call them Sickness, Pain, Death, and the like: and hence comes also the difference between regular and irregular motions; for all those motions that belong to the particular nature and consistence of any figure, they call regular, and those which are contrary to them, they call irregular.[51]

Here Cavendish is calling to mind a very familiar phenomenon. We might come to learn that we have a disease, for example, and then identify the disease as a departure from what ought to happen, or as an irregularity or mutation, but that does not mean that the occurrence of the disease was a matter of bodies failing to behave in a fully lawlike manner. In the end, Cavendish does not hold that there are true irregularities, and she does not appeal to the existence of true irregularities as support for the conclusion that creatures are in possession of libertarian freedom.

Another worry for the libertarian interpretation of Cavendish is that an apparently non-negotiable tenet of her system is that creatures are dependent on each other for their properties and their structural integrity. Cavendish writes for example that

> no seeds can produce of themselves if they be not assisted by some other matter; which proves, that seeds are not the prime or principal creatures in nature, by reason they depend upon some other matter which helps them in their productions: for if seeds of vegetables did lie never so long in a storehouse, or any other place, they would never produce, until they were put into some proper and convenient ground: It is also an argument, that no creature or part of nature can subsist singly and divided from all the rest, but that all parts must live together; and since no part can subsist and live without the other, no part can also be called prime or principal.[52]
>
> The same may be said of all other particular and perfect figures: As for example, an animal, though it be a whole and perfect figure, yet it is but a part of earth, and some other elements, and parts of nature, and could not subsist without them; nay, for anything we know to the contrary, the elements cannot subsist without other creatures.[53]

If creatures take on the motions that they do as a result of an exercise of their libertarian freedom, then presumably they would not be so dependent on the behavior of the creatures that surround them. An animal would not need sunlight or other sources of nourishment, for example, and a seed would be able to transform its motions so as to become a plant, even if it were not placed in (what turns out to be) the proper kind of soil. But creatures are so dependent, Cavendish supposes, and no doubt she is correct. Creatures do not have libertarian freedom, on her view, though they do cooperate to bring about the variety that surrounds us.

A final worry for the libertarian interpretation of Cavendish is that there is no room in her ontology for the new and spontaneous motions that would appear to be part and parcel of activity that is free in the libertarian sense. As we have seen, Cavendish holds that the motion of a body is inseparable from that body, and so no body can lose its motion. But nor can a body ever gain motion, unless it also gains the substance from which that motion is inseparable. For new motion to be added to a body, that motion has to be the motion *of* a body, and it is only added to a second body if its matter is added as well. But in that case we would not have a generation of new (spontaneous) motion, but just motions that are already in existence.[54]

Cavendish holds that bodies interact with each other and affect each other's motion, but she supposes that the motion of a body is inseparable from the body that has it and thus that motion is never transferred from one body to another. Still, bodies make a difference in each other's motions and sometimes change the direction of the motion that a body would have taken otherwise. Cavendish holds that there are many instances in which a body changes the direction of motion of a second body. In cases where the second body resists, its behavior is not free. Cavendish is a determinist who holds that the behavior of creatures is often free, which is to say that she is a compatibilist and not a libertarian.

Cavendish also supposes that the bodies of nature for the most part tend to behave cooperatively, and hence that they tend to be free in their interactions with each other. The relationship between external bodies and the sense organs of a perceiver is no exception, as the next section will make clear.

5. Causation and Perception

According to Cavendish, the bodies that compose a sense organ do not resist or oppose the bodies that it detects; instead, the sense organ works to gain information about those bodies, and it actively copies that information so that the perceiver can take it into account. The process here is cooperative, and as we would expect, the bodies that compose the sense organ have their own internal motions by which they form an image of

the perceived object. An idea is always a material picture of its object, Cavendish supposes:

> I take an idea to be the picture of some object . . .; neither can I conceive how an immaterial can have a form, not having a body.[55]

The bodies that compose a sense organ have motions that are inseparable from them and it is by means of these motions that they form an image of the object that is perceived.

Cavendish holds that bodies are always a combination of rational, sensitive, and inanimate matter. Bodies contribute to the motion of other bodies, in a way that is usually cooperative and not forced. In the case of sensory perception, an external body does not transfer its motion to the sense organ of a perceiver. Bodies never do that. Instead, the bodies that compose a sense organ utilize their own motions to form a pattern of the perceived object:

> To pattern out, is nothing else but to imitate, and to make a figure in its own substance or parts of Matter like another figure.[56]
>
> the motions of the sentient in the act of perception, do figure out or imitate the motions of the object, so that the object is but as a copy that is figured out, or imitated by the sentient, which is the chief agent in all transforming and perceptive actions that are made by way of patterning or imitation.[57]

Here Cavendish is opposing the sort of view that is found in the work of Hobbes (and later in Hume) according to which external bodies impress themselves on the sense organ of a perceiver and stamp an image onto it.[58] One reason that Cavendish opposes such a view is that she holds that motion is always self-motion, and so the motion of the bodies that form the image in a sense organ are always the self-motions *of* those bodies. Another reason is that she supposes that bodies are always composed of active and intelligent matter, and so the idea of senseless bodies traveling in the air and imposing their motion on a sense organ is doubly ludicrous:

> how absurd it is to make senseless corpuscles, the cause of sense and reason, and consequently of perception, is obvious to everyone's apprehension, and needs no demonstration.[59]
>
> [how absurd it is to suppose] that a substanceless and senseless motion, should make a progressive journey from the object to the sentient, and there print, figure and colour upon the optic sense, by a bare agitation or concussion, so that the perception or apparition (as they call it) of an object, should only be according to the stroke the agitation makes.[60]

Sensory perception is a special case of bodies working together in unison: the motions of a sense organ will tend to copy or pattern the image of a perceived body, and not to resist the formation of that image. Of course, there might be cases where the component bodies of a sense organ resist the formation of the image of an external body, and there might be cases where the sense organ does not form the image at all. But Cavendish supposes that as a rule bodies tend to cooperate and work in concert. In the case of causal interactions more generally, a body communicates to another body how it would have that body move, and the second body either resists or not, but in most cases the bodies of nature cooperate in a way that benefits individual and group both.

6. Perception in the Plenum

A final metaphysical tenet that is important to consider in the context of Cavendish's views on causation, and in the context of her understanding of sense perception, is her view that the material universe is a plenum. Active and intelligent bodies abound, Cavendish supposes, and any apparently empty space that we encounter is in fact filled by additional active and intelligent beings. Against the idea of a vacuum, she writes,

> an incorporeal dimension or extension, seems, in my opinion, a meer contradiction; for I cannot conceive how nothing can have a dimension or extension, having nothing to be extended or measured.[61]
>
> by reason this Matter is not subject to our gross senses, although our senses are subject to it, as being made, subsisting and acting through the power of its actions, we are not apt to believe it, no more then a simple Country-wench will believe, that Air is a substance, if she neither hear, see, smell, taste, or touch it, although Air touches and surrounds her.[62]

The universe is a plenum, according to Cavendish, and so we might expect her to subscribe to the view that the behavior of a given body is always affected by the behavior of the bodies that immediately surround it. We might also expect her to hold that if there is ever action at a distance of one body upon another, that action is due most directly to the continuous chain of bodies in between. That is to say, we might suppose that for Cavendish action is always by contact. She sometimes says exactly that:

> be the Weapon which inflicted the wound, never so far from the wounded Person, as they say, yet it will nevertheless do its effect: But yet there must withal be some conjunction with the blood. . . . [T]he same may be said of all Infectious and catching Diseases amongst Animals, where the Infection, be it the Infected Air, or a Poysonous Vapour, or any thing else, *must needs touch the body*[;] . . . they

cannot infect particular Creatures, or Animals, without coming near, *or without the sense of Touch*.[63]

Neither is the influence of the Stars performed beyond a certain distance, that is, such a distance as is beyond sight or their natural power to work; for *if their light comes to our Eyes*, I know no reason against it, but their effects may come to our bodies. And as for infectious Diseases, they come by a corporeal imitation, as by touch, either of the infected air, drawn in by breath, or entring through the Pores of the Body, or of some things brought from infected places.[64]

There is also the passage in which Cavendish says that when a body acts upon a second body that is at a distance, "there must be a due approach between the Agent and the Patient, or otherwise the effect will hardly follow."[65]

There are also passages in which Cavendish appears to reject the view that action is always by contact or touch. She writes for example:

> the several parts, betwixt which the Perception is made, may be at such a distance, as not capable to press: As for example, Two men may see or hear each other at a distance, and yet there may be other bodies between them, that do not move to those perceptions, so that no pressure can be made, for all pressures are by some constraint and force.[66]
>
> they are out, that say, there can be no communication at a distance, unless by pressing and crowding; for the patterning of an outward object, may be done without any inforcement or disturbance, jogging or crowding, as I have declared heretofore; for the sensitive and rational motions in the sensitive and rational parts of matter in one creature, observing the exterior motions in outward objects, move accordingly.[67]

Perhaps Cavendish is saying in these passages that there are instances of literal action at a distance, but she might also just be rejecting the view that cases of action at a distance are always a matter of the pressure and force of intermediary bodies. Action at a distance might instead involve a continuous process of patterning from the object perceived to the perceiver. Indeed, she says as much in the above passage on the perception of the stars—she says that we can perceive these so long as "their light comes to our Eyes"—and she suggests the same more generally:

> *I do not say*, that the Corporeal motions of light or air, cannot, or do not pencil, copie, or pattern out any figure, for both light and air are very active in such sorts of Motions, but I say, they cannot do it on any other bodies but their own. But to cut off tedious and unnecessary disputes, I return to the expressing of my own opinion,

> and believe, that the glass [of a scope] in its own substance doth figure out the copy of the face, or the like, and from that copy the sensitive motions in the eyes take another copy, and so the rational from the sensitive; and in this manner is made both rational and sensitive perception, sight and knowledg. The same with Ecchoes; for the air patterns out the copy of the sound, and then the sensitive corporeal motions in the ear pattern again this copy from the air, and so do make the perception and sense of hearing. You may ask me, *Madam*, if it be so, that the glass and the air copy out the figure of the face and of sound, whether the Glass may be said to see and the Air to speak? I answer, I cannot tell that; for though I say, that the air repeats the words, and the glass represents the face, yet I cannot guess what their perceptions are, onely this I may say, that the air hath an elemental, and the glass a mineral, but not an animal perception.[68]

Here Cavendish is expressing her view that like all bodies, air and light are knowledgeable and perceptive, even if they do not have the same kind of knowledge and perception as human beings and other animals. On this view, air perceives (for example) the sound in its vicinity, but not because the sound impresses itself on the air, but because the air copies and patterns the sounds—by means of its own internal motion. Cavendish appears to hold that when we witness a case of action at a distance, the more complete story is that intermediary bodies are perceptive all the way from the object perceived to the sense organ: a body does not travel all the way from one to the other, for example through a wall,[69] but instead the perceived external body communicates with the air which communicates with intermediary bodies and then more air, and the active bodies of the sense organ pattern the distant body in response.

Cavendish offers an account of sense perception that squares with her larger view of the activity of bodies and the general cooperation that is exhibited in nature. There are the images that form in sense perception, of course, but there are other images that are part of cognition as well. There are ideas, and as we have seen these (according to Cavendish) are always pictures of their objects. She will take this view to an extreme and argue that if there are things that exhibit no figure—for example God, or immaterial minds—we cannot have ideas of them and so cannot conceive of them.[70] Cavendish indeed inclines toward the view that all ideas have their origin in sensation:

> Some say that there is such a nature in man, that he would conceive and understand without the senses, though not so clearly, if he had but life which is motion. Others say, there is nothing in the understanding, that is not [f]irst in the senses, which is more probable, for the senses bring all the materials into the brain, and then the brain

> cuts and divides them, and gives them quite other forms, then the senses many times presented them.[71]
>
> to prove that the Rational (if Regular) moves with the Sense, is, that all the several Sensitive perceptions of the Sensitive Organs . . . are thoughts of the same.[72]

However, she does allow that there are exceptions—that there are things that we detect and cognize but that we do not sense. We know these instead through reason:

> Truly our reason does many times perceive that which our senses cannot; and some things our senses cannot perceive until reason informs them; for there are many inventions which owe their rise and beginning only to reason.[73]
>
> There is a Double Perception in Nature, the Rational Perception, and the Sensitive: The Rational Perception is more subtil and penetrating than the Sensitive; also, it is more generally perceptive than the Sensitive; also, it is a more agil Perception than the Sensitive.[74]

We have already seen that Cavendish takes rational matter to be more active and quick than the other two kinds of matter. In the above two passages, she is presumably thinking that there are instances in which rational matter copies and patterns information about external bodies—information that sensitive matter is too slow to capture. All bodies are a blending of the three kinds of matter, and so ideas will contain sensitive and inanimate matter also, but for the most part ideas will be rational matter, and they will be able to copy what other bodies cannot. If an external body or a component of an external body is moving too quickly—for example, if it is largely rational matter—a sense organ will not be able to pattern it. If we do gain insight into such things, we are in possession of knowledge and ideas that are not formed through the senses.

We do seem to glean information and ideas that are beyond the purview of the senses, which is to say that there appears to be a kind of cognition that is much more penetrating. It is not just ideas that we garner via reason, Cavendish supposes, for as we have seen she also puts forward what we might call axioms or intuitions. She holds for example that something cannot come from nothing, that a given cause is sufficient to guarantee the existence of its effect, that there can be no empty space, and that immaterial motion is impossible. She does not get into much detail on what we know by reason, or what it entitles us to speculate and why. Nor does she spell out what it means to say that reason penetrates *further*—if it undertakes a temporary expedition to outer objects and then returns to the body of the perceiver, or if it always remains within that body.[75] Perhaps she is simply recognizing that there are results that we seem to know extremely well, but that are not uncovered through the

senses, and that if these results are as trustworthy and obvious as they seem to be, then clearly we have a faculty of cognition that is able to reach what the senses cannot.

7. The Intelligibility of Causal Connection

A final aspect of Cavendish's view on causation is the tenet that there is no intelligible connection between a cause and its effect. She holds that the existence of a given set of occasional causes guarantees the coming to be of its effect, but she does not hold that there is a necessary connection between a cause and its effect in such a way that the effect can be anticipated or read from the concept of the cause. In a couple of passages that are reminiscent of the view that we find later in Hume, she writes,

> we have only found that Effect of the Load-stone, as to draw Iron to it, but the Attracting motion is in obscurity, being Invisible to the Sense of Man, so that his reason can only Discourse, and bring Probabilities to Strengthen his Arguments, having no Perfect Knowledge in that, nor in any thing else; besides, that Knowledge we have of several things, comes as it were by Chance, or by Experience, for certainly, all the Reason man hath, would never have found out that one Effect of the Load-stone, as to draw Iron, had not Experience or chance presented it to us, nor the Effect of the Needle.[76]
>
> the Load-stone may work as various effects upon several Subjects as Fire, but by reason we have not so much Experience of one as the other, the Strangeness creates a Wonder, for the Old saying is, that Ignorance is the Mother of Admiration, but Fire, which produces greater Effects by Invisible motions, yet we stand not at such Amaze, as at the Load-stone, because these Effects are Familiar unto us.[77]

We are sometimes surprised when a given effect results from an observed cause, perhaps because other effects have often followed that (observed) cause.[78] Or we might be surprised because there are certain causes and effects that we have observed to occur together regularly, and we take those to be familiar and to make sense, but causal relationships that are uncommon or new we see as mysterious. For Cavendish, however, there is no intelligible connection between a cause and its effect. That is to say, in the effort to uncover the causal processes at work in Nature, there is no way to understand in advance why a given cause would lead to its effect, and in addition it is extremely difficult to notice all the causes that are operative in a given interaction. She accordingly recommends that if and when we do take on the task of uncovering causal processes, we should be slow, patient, and careful. We observe and study the variables that appear to be in play in each case, and we respect that there might be so

many that we might only come to learn and master a few. She says for example of the attempt to find the cures of disease that

> It is almost impossible for all Physicians to know all Diseases, and their Remedies, as they profess to do, by their general Practices; for we find, to learn a mean Art, it is the study and service of seven Years; and certainly it is much more difficulty to know Diseases, which are like Faces, not any one alike; Besides, Diseases lye so hid in the Body of an Animal, as they are never perfectly known, but guess'd at; and to know the Cure of a Disease, is as hard, as to know the Disease; . . . Wherefore it were good, that every particular Physician should be bound by a Law to study onely a single Disease, and the Cure thereof, and not to confound their Brains with terms and names of Diseases, and to kill the Patient, by being ignorant of the Cause.[79]

We might suppose that research instruments could come to the rescue here, and allow us to take inventory of far more variables than could have been noticed in Cavendish's time. But Cavendish argues that in fact we have reason to believe that human artefacts will never secure us the same kind of reliable data that are obtained by natural productions like the human eye.[80] She writes for example that "those arts are the best and surest informers, that alter nature least, and they the greatest deluders that alter nature most."[81] An artefact might be of use, she thinks, if its construction were to piggyback on the existence of natural productions whose component parts have a long history of collaboration and know-how, but in that case the item would be on a spectrum from artefact to natural production, and would be closer to the latter.[82]

The story of Cavendish on causation and cognition is indeed long and windy, but it has a central thread. Bodies are active, intelligent, and collaborative, and if we respect their nature as such, they will work with us to bring about effects that benefit individual and group both. She does not hold out hope that we (human beings) will do this, at least not en masse, but she does suppose that at least some of us will be driven by a desire to uncover and cognize the many hidden causes in Nature and then use our compatibilist freedom to wise up and go with the grain.

Notes

1. For example, *Principles of Philosophy* IV.198, in Descartes 1985, 285.
2. For example, *Ethics*, Part II, Proposition 10, corollary, in Spinoza 2002, 249.
3. For example, *Principles of Philosophy* II.11–18, in Descartes 1985, 227–31.
4. For example, Leibniz 1989, 94–98.
5. For example, Conway 1996, 42–46.

6. For example, *Principles of Philosophy* I.23, I.40, and II.36, in Descartes 1985, 201, 206, and 240. A very similar view is in *Short Treatise on God, Man and His Well Being* I.iv-I.vi, in Spinoza 2002, 51–56.
7. Cavendish 1668, 2.
8. Cavendish 1666b, 20. See also Cavendish 1664, 185–86.
9. Cunning 2016, chapter two.
10. Cavendish 1666a, 46–47.
11. Cavendish 1664, 45.
12. In the case of More (1925, 169) and Cudworth (1964, 157–62)—finite immateriality—and in the case of Malebranche (1997, 446–52)—divine immateriality.
13. Cavendish 1664, 215.
14. See for example Cunning 2016, 91–92.
15. Cavendish 1666a, 41.
16. See for example 1666a, 78; and "A Dialogue between an Oake, and a Man cutting him downe," in Cavendish 1653, 66–70.
17. See for example Cavendish 2001, 140–44.
18. See for example Cavendish 1668, 32; and also Boyle 2018, 89–95.
19. Cavendish 1664, 155. See also Ibid., 356–57.
20. Ibid., 289.
21. See for example the terrific discussion in Boyle 2018, chapter five.
22. Cavendish 2001, 24. See also Cavendish 1664, 531.
23. Later in this section there will be a discussion of Cavendish's view that the motion of a body is always inseparable from that body and that hence a body can never add to the motion of a second body unless it also adds to that body the matter from which the (transferred) motion is inseparable.
24. See for example, Cavendish 1664, 444, and O'Neill 2001, xxiv–xxviii. No doubt much more defense of the threefold division of matter is required, but for the purposes of this paper it is enough to state Cavendish's view, as her final views on causation do not essentially depend on her acceptance of that division.
25. Cavendish 1664, 445.
26. Her primary target here appears to be Descartes, who in some passages (for example *Principles of Philosophy* II.23–31, in Descartes 1985, 232–36) speaks as though motion is a property or modification of a substance that transfers from one substance to another. Some commentators have argued that Descartes is just speaking loosely in such passages and that in the final analysis he holds that God is the direct cause of all motion. See for example Hatfield 1979, 113–40.
27. Cavendish 1666c, 59.
28. Malebranche 1997, 446–52. See the chapter by Stephan Schmid in this volume.
29. Cavendish 1664, 436.
30. Cavendish 1655a, 31.
31. Cavendish 1664, 53.
32. Cavendish 1655a, 37.
33. The existing motions of a seemingly motionless bowl would be internal to the bowl—in between its surfaces—and so would not be visible to us. The motions of the bodies that make up the surface area of a bowl would often be invisible to us as well, if for example the surface had a single uniform color. Such bodies would seem to us to be at rest, as would the bowl itself.
34. Cavendish 1668, 105.
35. Cavendish 1664, 96.

36. See for example Cavendish 1664, 284; Sarasohn 2010, chapter seven; and Cunning 2016, 185–96.
37. Cavendish 1668, 16.
38. Both of the two cases are similar to (but also different from) the case of a body that is composed of large amounts of inanimate matter. Cavendish holds that inanimate matter *slows down* rational and sensitive matter. It does not have internal motions that oppose or run counter to the motion of animate matter, but it keeps animate matter from moving more quickly than it would on its own. Cavendish is in the funny position of having to say that inanimate matter moves, but that strictly speaking it does not *have* motion. When it moves it moves by courtesy of the animate matter to which it is attached.
39. See for example Boyle 2018, chapter one; Detlefsen 2007, 180–87; Sarasohn 2010, 96–97.
40. See for example Cunning 2016, chapter six; and Walters 2014, 83–87.
41. Cavendish 1668, 6.
42. Cavendish 1664, 225.
43. See for example "The Fourth Meditation," in Descartes 1985, 37–43.
44. "Epistle," in Cavendish 1655b, unnumbered page between pp. 26 and 27. See also Cavendish 1671, 625.
45. Cavendish 1664, 113–14.
46. See esp. Boyle 2018, chapters one, four, and five.
47. Cavendish 1668, 84.
48. Cavendish 1664, 538–39.
49. Ibid., 359–60.
50. For example Boyle 2018, 29.
51. Cavendish 1664, 332.
52. Cavendish 1664, 430, 451, 455.
53. Ibid., 126–27.
54. We might also add here the perennial worry that libertarian freedom, if it is a matter of mental activity being uncaused, would not appear to give us any special control over that activity, but would appear to make an agent into more of a loose cannon. (See for example Van Inwagen 2000, 1–19.) If so, it is not clear what benefit Cavendish might have thought would come from positing it.
55. Cavendish 2001, 88. See also Cavendish 1655a, 119.
56. Cavendish 1664, 420.
57. "To the Reader," in Cavendish 2001, 18.
58. For example *Leviathan*, I.1.iv, in Hobbes 1994, 6–7; *Treatise of Human Nature*, I.1.i, in Hume 1978, 1–7.
59. Cavendish 2001, 147.
60. Ibid.
61. Cavendish 1664, 451–52. See also pp. 453–54, 521.
62. Ibid., 418.
63. Ibid., 290, emphasis added.
64. Ibid., 302, emphasis added.
65. Ibid., 301–2. See also p. 423.
66. Ibid., 18.
67. Ibid., 182.
68. Ibid., 81.
69. Cavendish 1664, 73.
70. Cavendish 1664, 69, 1668, 1–2.
71. Cavendish 1655b, 20–21.

72. Cavendish 1668, 57.
73. Cavendish 2001, 192.
74. Cavendish 1668, 9.
75. The former would run parallel to the view in Spinoza that as individuals acquire more knowledge, especially what he calls the third kind of knowledge (intuition), they acquire additional being and reality more generally. An example might be an expert chef who knows their way around a kitchen so well, and who can use its tools non-clumsily and seamlessly, that those tools are in effect an extension of the chef's mind and body. (See for example *Ethics*, Part II, Proposition 40, scholium 2, in Spinoza 2002, 266–68.) At certain moments, the chef is literally a larger entity than the body that we would normally identify as the boundary that separates the chef from other individuals. Given her plenum metaphysics and her view of the skilled unconscious knowledge that guides much of human behavior, Cavendish might have a very similar view about the fluidity of the boundaries that demarcate an individual human being.
76. Cavendish 1655a, 67.
77. Ibid., 68.
78. Of course, Cavendish would say that the variation in effects is due to additional causes that we failed to notice.
79. Cavendish 1655b, 179–80. See also Cavendish 1655a, 169–70.
80. For example Cavendish 2001, 50–53.
81. Cavendish 2001, 53. See also Cavendish 1666a, 86.
82. See also Cunning 2016, chapter 5.

Literature

Boyle, Deborah. *The Well-Ordered Universe: The Philosophy of Margaret Cavendish*. New York: Oxford University Press, 2018.

Cavendish, Margaret. *Poems and Fancies—Poems, and Fancies Written by the Right Honrable, the Lady Margaret Newcastle*. London: Printed by T. R. for J. Martin, and J. Allestrye, 1653a.

———. *Philosophicall Fancies. Written by the Right Honourable, the Lady Newcastle*. London: Printed by Tho Roycroft, for J. Martin, and J. Allestrye, 1653b.

———. *The Philosophical and Physical Opinions Written by Her Excellency the Lady Marchionesse of Newcastle*. London: Printed for J. Martin and J. Allestrye, 1655a.

———. *The Worlds Olio Written by the Right Honorable, the Lady Margaret Newcastle*. London: Printed for J. Martin and J. Allestrye, 1655b.

———. *Orations of Divers Sorts Accommodated to Divers Places Written by the Lady Marchioness of Newcastle*. London, 1662a.

———. *Playes Written by the Thrice Noble, Illustrious and Excellent Princess, the Lady Marchioness of Newcastle*. London: Printed by A. Warren, for John Martin, James Allestrye, and Tho. Dicas, 1662b.

———. *Philosophical Letters, or, Modest Reflections upon Some Opinions in Natural Philosophy Maintained by Several Famous and Learned Authors of This Age, Expressed by Way of Letters/by the Thrice Noble, Illustrious, and Excellent Princess the Lady Marchioness of Newcastle*. London, 1664.

———. "An Explanation of Some Obscure and Doubtful Passages Occurring in the Philosophical Works, Hitherto Published By the Authoresse." In *Observations upon Experimental Philosophy to Which Is Added the Description of a*

New Blazing World/Written by the Thrice Noble, Illustrious, and Excellent Princesse, the Duchess of Newcastle, London: A. Maxwell, 1666, 45–68. ["An Explanation of Some Obscure and Doubtful Passages" is Cavendish 1666a.]

———. "Further Observations upon Experimental Philosophy." In *Observations upon Experimental Philosophy to Which Is Added the Description of a New Blazing World/Written by the Thrice Noble, Illustrious, and Excellent Princesse, the Duchess of Newcastle*, London: A. Maxwell, 1–92. 1666. ["Further Observations Upon Experimental Philosophy" is Cavendish 1666b.]

———. "Observations upon the Opinions of Some Ancient Philosophers." In *Observations upon Experimental Philosophy to Which Is Added the Description of a New Blazing World/Written by the Thrice Noble, Illustrious, and Excellent Princesse, the Duchess of Newcastle*, London: A. Maxwell, 1666, 1–44. ["Observations Upon the Opinions of Some Ancient Philosophers" is Cavendish 1666c.]

———. *Grounds of Natural Philosophy Divided into Thirteen Parts*. London: A. Maxwell, 1668.

———. *Natures Picture Drawn by Fancies Pencil to the Life Being Several Feigned Stories, Comical, Tragical, Tragi-Comical, Poetical, Romanicical, Philosophical, Historical, And Moral: Some in Verse, Some in Prose, Some Mixt, and Some by Dialogues*. London: A. Maxwell, 1671.

———. *Observations upon Experimental Philosophy*. Edited by Eileen O'Neill. Cambridge: Cambridge University Press, 2001.

Conway, Anne. *Principles of the Most Ancient and Modern Philosophy*. Edited by Allison P. Coudert and Taylor Corse. Cambridge: Cambridge University Press, 1996.

Cudworth, Ralph. *True Intellectual System of the Universe*. Stuttgart-Bad Canstatt: F. Frommann Verlag, 1964.

Cunning, David. *Cavendish*. London: Routledge, 2016.

Descartes, René. *The Philosophical Writings*. Edited by John Cottingham, Robert Stoothoff, and Dugald Murdoch, vols. I–II. Cambridge: Cambridge University Press, 1984–85.

Detlefsen, Karen. "Reason and Freedom: Margaret Cavendish on the Order and Disorder of Nature." *Archiv für Geschichte der Philosophie* 89 (2007): 157–91.

Hatfield, Gary. "Force (God) in Descartes's Physics." *Studies in History and Philosophy of Science Part A* 10 (1979): 113–40.

Hume, David. *A Treatise of Human Nature*. Edited by Peter H. Nidditch. New York: Oxford University Press, 1978.

Leibniz, Gottfried Wilhelm. "On Freedom." In *Philosophical Essays*, edited by Daniel Garber and Roger Ariew, 94–98. Indianapolis: Hackett, 1989.

Malebranche, Nicolas. *The Search After Truth*. Edited by Thomas M. Lennon and Paul J. Olscamp. Cambridge: Cambridge University Press, 1997.

More, Henry. "The Immortality of the Soul." In *Philosophical Writings of Henry More*, edited by Flora Isabel MacKinnon, 55–180. New York: Oxford University Press, 1925.

O'Neill, Eileen. "Introduction." In Cavendish 2001, x–xxxvi.

Sarasohn, Lis. *The Natural Philosophy of Margaret Cavendish: Reason and Fancy During the Scientific Revolution*. Baltimore: The Johns Hopkins University Press, 2010.

Spinoza, Baruch. "Ethics." In *Complete Works*, Edited by Michael L. Morgan and translated by Samuel Shirley, 216–382. Indianapolis and Cambridge: Hackett, 2002.

Van Inwagen, Peter. "Free Will Remains a Mystery." *Philosophical Perspectives* 14 (2000): 1–19.

Walters, Lisa. *Margaret Cavendish: Gender, Science, and Politics*. Cambridge: Cambridge University Press, 2014.

8 The Mechanical Mind

Hobbes on Sense Cognition and Imagination

Martine Pécharman

1. Introduction

The idea that sense perception is passive remains a familiar theme in early modern theories of knowledge, although they reject the Aristotelian-based doctrine of cognition as depending on information received from the external world through the mediation of sensible species that resemble the objects that are perceived. The anti-scholastic thesis that sensation is purely passive posits a causal-mechanistic relation between the thing perceived and the perceiver. Whether sense perception is viewed as a source of distinct or confused knowledge about the external world, and as the only source of ideas of bodies or not—that is, whether it gives support to an empiricist epistemology or not—, it is explained as caused by an external agent through a strictly kinetic process, which does not involve reception in the perceiver's sense organ of some proxy for the thing perceived.

Within this general framework, however, Thomas Hobbes claimed originality. In 1656, replying to attacks made by the Oxford Savilian Professors Seth Ward and John Wallis, he contends that none of the modern theoreticians cited by his critics as the true authorities in mechanistic psychology had discovered the correct causal analysis of sensation in terms of mechanistic principles.[1] Descartes, he says, attributes an unintelligible inclination to move (not motion) to the object of sensation[2]: Gassendi and Digby, he adds, merely restate the Epicurean opinion, quite different from his own. In defending himself against the charge of unoriginality, Hobbes emphasizes that the only reductionist account of sense perception by local motion able to provide an explanation that truly rejects the scholastic doctrine of intentional species is "the manner of sensation by such motion as . . . explicated . . . in . . . *Leviathan*."[3]

To be sure, in 1651 the goal in the first part ("Of Man") of the *Leviathan* is not to develop a detailed analysis of the physical causation of mental acts—namely, sensation, imagination, and mental discourse—that are naturally in man before the invention of speech. Yet, despite the brevity of the explanation, the mechanistic principles of the account are fully laid

out in chapters 1–3. Although the *Leviathan* provides a mere summary of a larger causal analysis of the prelinguistic cognitive powers, which Hobbes does not differentiate from acts of sensation, imagination, and mental discourse—the complete mechanistic explication remained unpublished until the *De corpore* of 1655[4]—, it is made clear that all of them are nothing but motion. However, the reason why only the explanation of sense perception summarized in the *Leviathan* constitutes for Hobbes a valid anti-scholastic or mechanistic model does not consist simply in the treatment of sensation as a kind of motion. More fundamentally, as Hobbes insists in his response to Ward and Wallis, the causal analysis in the *Leviathan* explains *how* exactly sensation is motion. For Hobbes, to be able to refute the scholastic doctrine that species emanate from external things and are impressed on the perceiver, the analysis of sense perception has to show that only a certain mechanical process (which will prove to be non-rectilinear) can produce the motion which the image of a sensible object consists of.

My aim in what follows is to show Hobbes's efforts, from *The Elements of Law* in 1640 to the *De corpore* in 1655, to develop an idiosyncractic explanation of cognition by way of mechanistic physics.[5] I will piece together the mechanistic explanation of the causation of cognitive acts in *The Elements of Law* and Hobbes's critique in the *Objectiones tertiae* (1641) of Descartes' account of mind as a substance. My suggestion is that a revisionist reading of Hobbes's doctrine of mind can emerge from this confrontation. Hobbes's mechanistic analysis of acts of sensation and imagination, I will argue, is not a manifesto for a materialist account of mind. Rather, his later works show that his main concern was to give a mechanistic account of the phenomenal character of sense cognition.

2. The Prototype of Objective Cognition

In the anthropological treatise in the first part of *The Elements of Law*, sense cognition and the cognitive processes (imagination and mental discourse) that derive from sensation are not distinct faculties, but only distinct acts of the mind's faculty of cognition. The faculty of cognition is not a substantial unity; rather, it is nothing more than a power to be understood together with its actualization, not separately from acts of cognition themselves. As a preamble to the explanation of the cause of sensation, Hobbes states what he means by this "power cognitive, or conceptive":

> For the understanding of what I mean by the power cognitive, we must remember and acknowledge that there be in our minds continually certain images or conceptions of the things without us, insomuch that if a man could be alive, and all the rest of the world annihilated, he should nevertheless retain the image thereof, and of all those

things which he had before seen and perceived in it; every man by his own experience knowing that the absence or destruction of things once imagined, doth not cause the absence or destruction of the imagination itself. This imagery and representations of the qualities of things without us is that we call our cognition, imagination, ideas, notice, conception, or knowledge of them. And the faculty, or power, by which we are capable of such knowledge, is that I here call power cognitive, or conceptive, the power of knowing or conceiving.[6]

Strikingly, Hobbes stipulates his definition of cognitive power by appeal to experience. Everyone is reflectively aware of the uninterrupted mental possession of images of external things. Such an introspective view on one's own mind makes possible the hypothesis on which Hobbes bases his understanding of cognition/conception and of cognitive/conceptive power. In this thought experiment, it is supposed that everything other than a single perceiver—that is, the external world as a whole—is annihilated. This supposition is not a purely fictional device. It puts emphasis on a consequence that can be drawn from introspective observation: the mental persistence of the images of external things does not require the extramental persistence of their causes.

The methodological imperative of clarifying the meaning of the word "conception" before clarifying the way conceptions are produced has a major "anti-Cartesian" effect. The strategy employed for defining the cognitive power shows that Hobbes wants to make sure at the outset that real knowledge of the external world will be understood as grounded in sense perception; the annihilation thought experiment showing that images retain their original cognitive import is meant to rule out any skeptical scenario. The analysis of mental causation that follows is intended as the demonstration that the act of sensation, precisely insofar as it is a motion that is the effect of a certain causal-mechanistic process, offers the prototype of objective knowledge. This assumption, in my view, lies in the background of Hobbes's ambiguous approval of Descartes' First Meditation in his First Objection of 1641.[7] His comment on the Meditator's position about *What can be called in doubt* focuses only on the Dream Argument: "[T]here is no criterion enabling us to distinguish our dreams from the waking state and from veridical sensations."[8] The absence of any such criterion leads Hobbes to build a deductive framework, which he substitutes for the content of the First Meditation. The Dream Argument, he claims, implies a connection between two consequences: (1) the non-identity of sense images with accidents inhering in external objects; and (2) the fact that the existence of external objects is not proven. This, he concludes, justifies Cartesian universal doubt. But he immediately adds a qualification to this justification: the fact that sense images cannot be distinguished from dreams compels us to doubt only if we rely on our senses "without any other reasoning" (*sine alia ratiocinatione*).

In fact, the first consequence that Hobbes infers from Descartes' Dream Argument—the non-identity of images in sense perception with accidents of the things perceived—does not belong to the Meditator's argumentation, but to the examination of the cause of sensation in *The Elements of Law*. Any act of sensation, or conception, Hobbes there states, is caused by the action of an external thing, and constitutes an instance of cognition or knowledge in the perceiver:

> By our several organs we have several conceptions of several qualities in the objects; for by sight we have a conception or image composed of colour or figure, which is all the notice and knowledge the object imparteth to us of its nature by the eye. By hearing we have a conception called sound, which is all the knowledge we have of the quality of the object from the ear. And so the rest of the senses also are conceptions of several qualities, or natures of their objects.[9]

These statements are double-edged, though. They do not rule out the scholastic account of sense perception; on the contrary, Hobbes stresses, the doctrine of the sensible species was contrived to support the most spontaneous approval of the cognitive value of any sensation. Because sense perception gives us knowledge of the qualities of external objects, we are easily inclined to believe that our sensations are "the very qualities themselves" of the things perceived.[10] Accordingly, the causal-mechanistic analysis of sense perception ("a great paradox," in opposition to common opinion or doxa) must show that the intentional species which, according to the scholastics, bring about cognition of things because they are identical in form with them, are "a plain impossibility."[11] It must establish that in all conceptions arising from the various senses, "the subject of their inherence is not the object, but the sentient."[12] Visual images are used as a paradigm for proving that sensations are not accidents inhering in the objects perceived. In indirect vision by reflection, or, even more forcefully, in instances of double vision, it cannot be that both images of the object inhere in it, since this would imply that the same object is in two places at the same time. Since there is no reason why one image rather than the other would inhere in it, the conclusion must be that "neither of them both are in the object."[13] The location of an image is never in the object of visual perception, which cannot be the subject in which the image inheres. After arriving at this negative conclusion, Hobbes still has to explain how the image inheres in the perceiver herself. This is the point in the demonstration where he has to determine what kind of motion sense cognition consists in. In other words, it is the moment of the causal-mechanistic explanation itself.

It is not difficult, Hobbes claims, to prove the proposition: "That image and colour is but an apparition unto us of that motion, agitation, or alteration which the object worketh in the brain, or spirits, or some

internal substance in the head."[14] The proof established paradigmatically for the twofold character of a visual image (the *apparition* to us of a *motion*) may be applied to all kinds of conception. The production of sensory ideas always involves a two-step mechanical process. First, a motion in an external thing is imparted to the external parts of some sense organ, and is transmitted through the internal parts (nerves) of this organ into the brain. So far, this motion is simply motion and not yet sensation. For example, an external object such as a ringing bell "hath motion, and not sound" and likely, when the motion transmitted by the auditory nerve reaches the brain, "the brain hath motion but not sound." However: "From the brain it [sc. this motion] reboundeth back into the nerves outward, and thence it becometh an apparition without, which we call sound."[15] What occurs in the brain is a "resistance or reaction"[16] to the motion transmitted through the sense organ.

The second stage of the mechanical process resulting in sensation originates with this internal opposition to the motion transmitted by nerves into the brain. For Hobbes, instead of producing an impression on the brain (as it would in the Cartesian model), the motion transmitted from the external parts of the sense organ meets the brain's resistance, and thus goes back along the same path from the inner parts of the perceiver's body to the sense organ. There is sensation because of this rebound of the motion imparted by an external thing. The nature of the act of sensation consists in the interior reaction redirecting this motion outwards. In reality, the original cognition or conception of some object (which is, as stressed above, Hobbes's understanding of any sensation) is only a retro-motion in the perceiver, but necessarily it appears to the perceiver as something external. Insofar as the perceiver has no awareness of the "rebound from within," she apprehends it as "without": the internal motion in an outward direction comes to be an external "apparition."[17] Scholastics mistake this apparition for an intentional species. Their doctrine of sense perception confounds the apparition (experienced as external to the perceiver) of what is nothing more than an internal motion with an appearing form of the thing perceived by sense. Hobbes's mechanistic model stresses that scholastics are misled by the appearance of exteriority, which is the only consciousness involved in sense perception. Furthermore, his reductionist explanation implies a second "paradox" for the scholastics. Since sense cognition is nothing but a motion in the perceiver, a quality perceived is not itself the object of sense. It has no status beyond the epiphenomenon inseparable from a reaction from the brain. Scholastics confuse the object of sensation, which cannot be anything other for Hobbes than the body which is the external agent of the act of sensation, with the very act of sensation.[18]

Hobbes's First Objection to Descartes thus applies as an immediate consequence of the Dream Argument the thesis of *The Elements of Law* that a sense image is an accident that inheres in the perceiver, not in the

external object. Hobbes suggests that, on the condition of "some other reasoning," a conclusion quite different from Cartesian universal doubt may be derived from it. *The Elements of Law* provides this reasoning. The description of the mechanistic process causing sensation shows that any conception, insofar as it is an internal motion in some parts (brain, animal spirits) of the perceiver's body, is undoubtable.[19] Correspondingly, since the cause of this motion can be only a prior motion which necessarily belongs to some other body, the existence of an external agent for any sense image is unquestionable. Indeed, in order to assert that the sensation caused by an object cannot be the same as an accident inhering in this object itself, Hobbes invokes the standard scholastic axiom that "nothing can make anything in itself"[20]; but the argument also highlights that the real subject in which sensation is present as an accident—namely, the perceiver—cannot herself be the agent of her sensation. Necessarily, the agent of an act of sensation is something outside the perceiver. When sensation is explained as nothing other than motion, only an external body can be the agent of sensation; that is, only an external body can be the subject of the motion causing in the perceiver the retro-motion that defines sensation.

Now, once the conception of some external object is produced, this conception can persist even after the thing which was the agent of its production has disappeared. The mental persistence of an image or internal motion does not require that of its external cause:

> [T]he effect [doth not] cease which the object hath wrought upon the brain, so soon as ever by turning aside of the organ the object ceaseth to work; that is to say, though the sense be past, the image or conception remaineth.[21]

In this causal analysis, the warrant of objective knowledge lies in the fact that the image in the imagination is the same motion as the sense image. Depending on whether its external agent is present or absent, the same internal motion is considered as an act of sensation or as an act of imagination. But whatever its name, the nature of motion of a conception makes the structural relationship of any conception to an object (involved in its effect-to-cause relationship) immune to doubt. As I see it, it is against this background that the First Objection deplores Descartes' use of the Dream Argument (just an "ancient material," Hobbes complains) at the beginning of his *philosophia prima*.[22] At the time of his objections to Descartes, Hobbes was also attempting to draft the work which would eventually be published as *De corpore*. The early drafts of *De corpore*, to which the Latin manuscript criticizing Thomas White's *De mundo* (the so-called *Anti-White* of 1642–1643) also testifies, show that for Hobbes, "first philosophy" should not begin with the hypothesis that all my sensations are as illusory as dreams, but with the hypothesis

that everything other than my mental images is annihilated. The latter hypothesis provides the notion of the "imaginary space" (*spatium imaginarium*) from which the definition of body (*corpus*) as identical to that which subsists by itself (*subsistens per se*) or that which exists (*existens*) can be deduced.[23] In Hobbes's project, substance monism (all substances are corporeal) must be inferred from the very nature of image as apparent space.

3. Mechanical Mind, Not Material Mind

It is striking that in his replies to the *Objectiones tertiae*, Descartes does not wonder what might be Hobbes's own doctrine on ideas as images. When Hobbes grounds his denial of any idea of God in his understanding of "idea" as an "image made up of a certain shape and colour,"[24] Descartes at once retorts:

> Here my critic wants the term "idea" to be taken to refer simply to the images of material things which are depicted in the corporeal imagination (*phantasia corporea*). . . . But . . . I am taking the word "idea" to refer to whatever is immediately perceived by the mind.[25]

By rejecting Hobbes's restrictive meaning of "idea," and substituting for it the broader meaning "whatever is immediately perceived by the mind," Descartes in fact is dissociating his theory of ideas in the Third Meditation from his account in his unpublished *Rules for the Direction of the Mind* and *Treatise on Man*. Rule XII states that ideas are figures imprinted in the corporeal imagination:

> [W]hen an external sense organ is stimulated by an object, the figure which it receives is conveyed at one and the same moment to another part of the body known as the "common" sense, without any entity really passing from the one to the other. . . .
>
> [T]he "common" sense functions like a seal, fashioning in the phantasy or imagination, as if in wax, the same figures or ideas which come, pure and without body, from the external senses. The phantasy is a genuine part of the body.[26]

Similarly, the *Treatise on Man* explains "how ideas of objects are formed in the place assigned [*in the brain*] to the *imagination* and to the *'common' sense*."[27] The cerebral location of the "figures" that correspond to (but do not resemble) those of the objects is essential for determining the extension of the word "idea":

> [I]t is not [*the figures*] imprinted on the external sense organs, or on the internal surface of the brain, which should be taken to be

> ideas—but only those which are traced in the spirits on the surface of the gland H (*where the seat of the imagination and "common" sense is located*). That is to say, it is only the latter figures which should be taken to be the forms or images which the rational soul united to this machine will consider directly when it imagines some object or perceives it by the senses.
>
> And note that I say "imagines or perceives by the senses." For I wish to apply the word "idea" generally to all the impressions which the spirits can receive as they leave the gland H.[28]

In 1641, Descartes does not consider that Hobbes's Fifth Objection to the idea of God might be giving an account of the ideas-images that is different from his own previous account. In fact, the phrase "images of material things depicted in the corporeal imagination," which Descartes uses to characterize his opponent's definition of idea, summarizes his own mechanistic account of ideas-figures. This biased reading assumes that for Hobbes imagination is a part of the brain, a *phantasia corporea*, and that his reductionist view on ideas as images involves a materialist thesis about the nature of mind. It is crucial, however, to distinguish in Hobbes's theory of cognition the mechanistic explanation of imagination from a materialistic view of imagination and mind. This may be established, *pace* Descartes, from Hobbes's own Fourth Objection.

In the Second Meditation, the Meditator discovers that even through a limited range of modifications of the states of a piece of wax, her imagination is unable to have more than indistinct and confused ideas of this body. For Descartes, this proves that the nature of a body cannot be perceived by the imagination but only by the mind. Hobbes's Fourth Objection rejects the epistemic hierarchy involved in this Cartesian opposition between "to imagine" and "to perceive by the mind alone." He rewords the two opposites, which become "to have some idea" and "to conceive by the mind (that is, to infer) that something exists." The first rewording ("imagining, that is, having an idea")[29] makes clear that Hobbes refuses to divide ideas into two sorts, namely, ideas of the imagination and ideas of the intellect. "Imagining" takes in the whole of ideation: all ideas are images. This discussion, however, is not meant to show only that what must be distinguished from imagination is simply a conclusion, drawn by a process of reasoning, concerning the existence of something (simply the assertion *that it is*, without elucidating *what it is*).[30] More fundamentally, the distinction replacing the Cartesian opposites gives Hobbes an opportunity to introduce an argument which is, to my knowledge, the only argument he ever develops in his writings to define the mind:

> Now, what shall we say if it turns out that reasoning is simply the joining together and linking of names or appellations by means of the verb "is"? It would follow that the inferences in our reasoning

tell us nothing at all about the nature of things, but merely tell us about their appellations; that is, all we can infer is whether or not we are combining the names of things in accordance with the arbitrary conventions which we have laid down in respect of their significations. If this is so, as may well be the case, reasoning will depend on names, names will depend on imagination, and perhaps imagination will depend (as I believe it does) on motion of the bodily organs; and so the mind will be nothing more than motions in some parts of an organic body.[31]

The starting point of this argument is a consideration of "reasoning" (Hobbes's substitute for Descartes' "perceiving by the mind alone"), but the final step is a consideration of "imagining," so that the definition of mind is directly derived from the mechanistic cause of the act of imagination. By itself, the pair of mental acts substituted for the Cartesian one does not call for an explanation linking "reasoning" to its conditions, seriated from the most immediate (the making of propositions) to the most remote (the mechanistic causation of images). The inferential reasoning leading to a mere assertion of existence is no longer the issue, even though Hobbes intends to use it subsequently to ground the denial of any idea of God.[32] Obviously, the issue is the very definition of mind. The question then is: should Hobbes's suggestion in the Fourth Objection that the mind is nothing other than motions occurring in the body be taken as an indication that Hobbes is a crude and vehement defender of a materialist definition of mind against Cartesian mind–body dualism?

At first, it seems to me useful to clarify a lexical point. The decisive step in the Fourth Objection's argument, leading Hobbes to conclude that the mind is only "*motus* in some parts of the organical body," is reached with the characterization of imagination as depending on "motion of the bodily organs" (*ab organorum corporeorum motu*).[33] Now, it strikes me that Descartes, who does not say anything more about Hobbes's definition of the mind than that it is absurd, understands the word *motus* in this definition in the singular. Indeed, Descartes promptly rejects Hobbes's proposal with the ironic remark:

> And surely on his account, when he concludes that the mind is a motion (*mentem esse motum*) he might as well conclude that the earth is the sky, or anything else he likes.[34]

For Descartes, Hobbes's conclusive statement does not say that the mind is "motions" (*mentem esse motus*), but that the mind is "a motion" (*mentem esse motum*). He views it as the peak of the whole argument's absurdity, and not even deserving of a reply. An analogous piece of nonsense ("the earth is the sky") suffices to accentuate that Hobbes is talking nonsense. Now, by passing so quickly over the grammatical form

of *motus* in Hobbes's conclusion, Descartes eliminates any difference between the causal-mechanistic explanation of imagination and the thesis about the merely mechanical mind that follows from it. From a strictly argumentative viewpoint, it would be fairer to consider that the conclusion about the mechanical nature of the mind adds something to the account of the cause of imagination. But Descartes is not interested in this possible supplement. He immediately rejects as foolish a doctrine which infers the absurd identity of mind with motion from the already absurd reduction of imagination to motion.

Would Descartes have had a better judgment of Hobbes's argument if he had known of *The Elements of Law*'s account of the cognitive power of the mind? Probably not. Be that as it may, this account provides a means of understanding the progress in the Fourth Objection from the causal-mechanistic thesis on imagination to the concluding remark about the mechanical nature of mind as a necessary consequence. According to the analysis of imagination in *The Elements of Law*, a strictly mechanistic principle serves to explain why and how an image of sensation persists as an image of imagination. An efficient cause is required for motion to begin, but not for its continuation. Once a motion is generated in a body by the action of another body, the motion in the patient does not cease when the agent is removed and its action ceases. Instead, the motion produced in the patient continues indefinitely: only stronger motions produced from outside in the same body (in cognition, motions causing new appearances to the perceiver) can hinder its continuation. Moreover, these stronger subsequent motions cannot stop the prior motion at once, but can cause only its gradual decay. Hence the definition of imagination (i.e., the act of imagining):

> [T]hough the sense be past, the image or conception remaineth; but more obscurely while we are awake, because some object or other continually plieth and soliciteth our eyes, our ears, keeping the mind in a stronger motion, whereby the weaker doth not easily appear. And this obscure conception is that we call PHANTASY or IMAGINATION; imagination being (to define it) conception remaining, and by little and little decaying from and after the act of sense.[35]

Taken singly, any image of the imagination or "conception remaining" is a motion (the very motion which sense cognition consists of) which continues in the absence of its agent. Yet sense cognition is not limited to one act of sensation; rather, there is an uninterrupted production from outside of new motions in any subject of perception (and thus, correlatively, of new "apparitions" or "appearances" to her). Similarly, the post-sensation images, or images of the imagination, are conceptions that are part of a continuous sequence and do not appear sporadically. The images that recur after first being produced by sensation belong to what *The Elements of Law* calls "discourse of the mind" or "DISCURSION."[36] This mental discourse is not any "succession of conceptions," or "series

or consequence of one after another": it is an "orderly" series of images, a continuous sequence in which "the former thought introduceth the latter."[37] Hobbes asserts unequivocally that any discursive cognition is predetermined by some original order between the acts of sensation:

> The cause of the coherence or consequence of one conception to another, is their first coherence, or consequence at that time when they were produced by sense.[38]

The internal motions which constitute acts of sensation are not caused as an unconnected series; they are in some sequence or "coherence" throughout the process of their causation. Accordingly, not only sense images remain when the external agents are removed, but also their connections. For Hobbes "experience" or empirical cognition is defined by the weblike structure obtained by the superimposition or summation of the many sequences of images that result from sense cognition.[39] Thus, in the Fourth Objection's argument, the act of imagination has a pivotal role or mediating function. It makes the transition from a semantic viewpoint (images are the significations of names in reasoning) to a mechanistic explication (each image is the effect of a motion in corporeal organs). This ultimately makes possible the reduction of mind to motions ("nothing more than motions"), that is, to sequences of images. Hobbes's definition of the mind as 'motions' states its discursive and sequential nature.

How does this support the thesis of a mechanical mind, not of a material mind? The Fourth Objection's argument about the mechanical nature of the mind illustrates that the mind is not a substance, but mere accidents (motions). The only substance is the body that is subject of these motions. Yet, this non-substantiality of the mind might seem insufficient to infer its non-materiality. Insofar as the motions constituting the mind are accidents in "an organic body," should they not be considered material? My contention is that they should not. This, to my eyes, may be established from Hobbes's earlier refutation, in his Second Objection, of Descartes' identification of the *res cogitans* with the mind.

The argument in the Second Objection addressing the assertion, "I am a thinking thing, that is, I am a mind, or intelligence, or intellect or reason," removes from the first part of the Meditator's own declaration the restriction "I am *in the strict sense only* a thinking thing," used to strengthen that the Meditator identifies herself as an intellectual being.[40] It is essential for Hobbes to consider the affirmation "I am a thinking thing" alone. He entirely endorses it:

> I am a thinking thing.
>
> Correct. For from the fact that I think, or have an image [*phantasma*] . . ., it can be inferred that I am thinking; for "I think" and "I am thinking" mean the same thing. And from the fact that I am thinking it follows that I exist, since that which thinks is not nothing.[41]

Interestingly, Hobbes's reasons for endorsing the assertion "I am a thinking thing" are not at all in line with the Meditator's approach. In the Second Meditation, the Meditator arrives first at the necessary truth of the proposition "I am." Only after the primordial discovery of this self-evident truth does she arrive at the second necessary statement that this "I" is strictly speaking just a thinking thing. But Hobbes's account of the truth of "I am a thinking thing" radically alters this analytic order. Hobbes disregards the progress from the certitude that "I am, I exist" to the question "What is this 'I' that indubitably exists?" He decontextualizes the Meditator's reply ("I am a thinking thing") to this question and redefines its function according to the inference in the *Discourse on the Method*, "I think, therefore I am," which he decomposes into two subinferences: "I think, therefore I am thinking" and "I am thinking, therefore I am." The first subinference replaces "I think" with the overtly attributive expression "I am thinking," of which it is the abridged form. The substitution permits him to draw the second subinference, in which the attributive proposition "I am thinking" is the premise and the existential proposition "I am" the conclusion. Hobbes bases this new consequence on the axiom "That which thinks is not nothing." Its truth thus comes from the more general axiom "That which has a property is not nothing," the reciprocal of the scholastic maxim "Nothing has no properties." Only a "not-nothing"—that is, a thing or being—can have a property; therefore, that which has the property of thinking necessarily is a thing or being. The reality of the "I" is demonstrated: "I" is some being or existent. Thus, for Hobbes the decomposition of the inference "I think, therefore I am" leads him to consider the existential proposition "I am" as the contracted form of the assertion that "I" and the thing having the property of thinking are one and the same being or existent.

This strategy proves to be crucial for Hobbes's refusal to equate the thinking thing with the mind. The assertion "I am a thinking thing" can only make possible the inference of the thing-ness or being-ness of the "I." It is illegitimate and fallacious to use it to infer the identity of the "I" with the mind. For Hobbes, the ridiculous inference "I am thinking, therefore I am thought," which is as absurd as would be the inference "I am walking, therefore I am a walk," is embodied in the Cartesian equivalence "I am a thinking thing, that is, a mind." None of these consequences constitutes "a valid argument," and the Cartesian equivalence is as invalid as they are.[42] To counteract the Meditator's equation of "I," the thinking thing, with "mind," Hobbes invokes a classical topos in metaphysics, the differentiation of a thing from the powers and acts which have it as their subject:

> [A]ll philosophers make a distinction between a subject and its faculties and acts, that is, between a subject and its properties and essences. For other is the being (*ens*), and other its essence (*essentia*).

> Hence it may be that the thinking thing is the subject of mind, reason, or intellect, and consequently something corporeal. The contrary is assumed, not proved.[43]

To say "I am a thinking thing, that is, a mind" contravenes, Hobbes stresses, a fundamental ontological principle. Although he makes no explicit reference, this principle may be traced back to the distinction in Aristotle's *Metaphysics* between that which walks, which truly exists because the subject of walking is an individual substance, and the walking, or similar acts, about which one may doubt whether they exist, since they cannot exist apart from the substance which is their subject and thus do not have complete being.[44] The Meditator's equivalence violates the impossibility for a thing, or being, to be the same as the act of which it is the subject. The assertion "I am a thinking thing, that is, a mind" combines incompatible names: it unites "I," the name of a thing or being, the thinking thing, with "mind," the name of the faculty and acts of thinking.[45] Hobbes's argument against the Cartesian identity between *res cogitans* and *mens* is thus the Inherence Argument: accidents inhering in a subject are not their subject, and reciprocally the subject of inherence of accidents cannot be identified with them. The acts of thinking forming the mind and their/its subject, the thinking thing, are not excepted from this principle.

Hobbes's Inherence Argument, however, does not really stick to the tradition invoked against Descartes. When he treats faculties, acts, properties, and essences as all having the same relationship to a subject, Hobbes effects a surreptitious transformation of the Aristotelian legacy. Strikingly, not only faculties, acts, and properties, but also essences are designated as multiple in relation to a subject. The Second Objection levels Aristotelian essences and Aristotelian accidents: the predicamental status of that which is "contradistinguished" from substance by its inherence relationship also applies to essences. Hobbes requires that the Meditator's affirmation "I am a thinking thing" drop the additive clause "that is, a mind" and conform to the traditional pattern of the distinction of a subject from its acts. But in fact he promotes a significant remapping of this ontological tradition. His critique of the identity between the thinking thing and mind involves a reinterpretation of the inherence relationship: it can no longer be grounded in a distinction between different senses of "that which is." The distinction between a being and its essence ("other is the being, and other its essence") means for Hobbes that there is no sense of "being" relevant for essence (or for faculty, act, property). "Being" is not said in many ways, but is strictly univocal, and its univocal meaning is that of the subject/substance for acts/accidents; these acts or accidents (or essences) do not themselves participate in being. The subject-act/substance-accident distinction becomes with Hobbes a distinction between being and non-being or non-thing. He thus contributes

to a reform of 'first philosophy' by refusing to understand the *inesse* of acts and essences as one of the meanings of *ens*.[46]

Why, in addition to refusing the identity of the thinking thing with mind, does the Inherence Argument also make it possible to assert that, as "the subject of mind," the thinking thing is material? It is again in reference to the formula "I think, therefore I am" that the Second Objection demonstrates that the corporeity of the thinking thing should be acknowledged as the consequence of the premise "I think":

> [H]ow do we know the proposition "I think"? It can only be from our inability to conceive any act without its subject. We cannot conceive of jumping without a jumper, of knowing without a knower, of thinking without a thinker.
>
> It seems to follow from this that a thinking thing is something corporeal. For it seems that the subject of any act can be understood only from the standpoint of corporeity, namely, from the standpoint of matter (*sub ratione corporea*, *sive sub ratione materiae*), as the author himself shows later on the example of the wax, which, when its colour, hardness, shape, and all other acts, are changed, is nevertheless understood to be still the same thing, that is, the same matter subject to so many changes. [. . .]
>
> The knowledge of the proposition "I exist" thus depends on the knowledge of the proposition "I think"; and knowledge of the latter proposition depends on our inability to separate thought from the matter that is thinking. So it seems that the correct inference is that the thinking thing is material rather than immaterial.[47]

The dependency of the certainty of the assertion "I think" on the axiom of the inconceivability of any act without its subject implies for Hobbes the rejection of the incorporeity of the thinking thing. Again, a tactical use of the Aristotelian legacy lies in the background. In the *Metaphysics* Aristotle develops a line of argument according to which if substance were understood as that which is always subject and never predicate, then "prime matter," the substratum that ultimately underlies all coming-to-be and passing-away, should be equated with substance. Aristotle rejects this option, but still continues the argument that matter is in itself merely the subject/substratum of multiple properties. The argument is based on a thought experiment: if we strip off all the qualities, affections, and powers of a sensible thing, matter remains as their bare substratum.[48] Hobbes therefore considers the Cartesian thought experiment of stripping off the qualities of the wax as perfectly consistent with the traditional view of substance as a subject underlying qualities and acts. Thus, in his eyes, Descartes is somewhat incoherent. The affirmation "I am a thinking thing, that is, a mind" contradicts the true conception of the subject of acts as material, whereas the thought experiment of the wax

confirms it. Insofar as the "I" is the subject of the acts of thinking, it should be conceived of in the same way as any subject of acts is conceived of: as the underlying matter which remains their permanent and identical subject throughout their changes.

Thus, the inference "I think, therefore I am" leads to the conclusion that the thinking thing is material. But "the contrary," Hobbes claims, "is assumed, not proved" by Descartes. This charge goes farther than the misunderstanding of the Meditator's order of reasons denounced in Descartes' reply.[49] According to Hobbes, by ignoring the ontological distinction of a thing from the acts of which it is the subject, Descartes tacitly confers to the thinking thing the non-being-ness or non-materiality of its acts. In Hobbes's view, the Cartesian statement "I am a thinking thing, that is, a mind" produces two vicious symmetrical consequences: (1) the dematerialization of the subject of the acts of thinking and (2) the pseudo-substantialization of the mind, which is non-material insofar as it consists of accidents, into an impossible immaterial substance.

Hobbes does not assert against Descartes the materiality of mind when he postulates the materiality of the thinking thing. He unambiguously states that the mind pertains only to the powers and acts of the thinking subject, not to this thinking subject itself. His materialist interpretation of the thinking subject cannot be understood as a materialist interpretation of its powers and acts. Surprisingly, the attribution to Hobbes's Second Objection of a materialist view on the mind still has a Cartesian bias, inasmuch as it does not break free from the Cartesian view of the mind as the same as the thinking thing.

What has been problematic in the reception of Hobbes's Second Objection to Descartes has been its rejection of substantialism with regard to mind. Hobbes argues for the distinction between non-material accidents (the acts of thinking) and the material subject in which they inhere (the thinking substance). His materialist monism (all substances are bodily) cannot incorporate a materialist theory of the mind: as a non-substance—that is, as a mere series of acts—the mind is non-material. Acts generated in bodies by motion are viewed in Hobbes's 'first philosophy' as non-things, and the bodies that are the subjects of these acts as the only beings. The preparatory drafts of the *De corpore* in the 1640s show that what eliminates "material acts" as a contradiction in terms and an illusory reification of accidents is the very physical process of the generation of acts in bodies. The relation of mental acts to the thinking thing cannot be for Hobbes that of material acts to a material subject, any more than it can be that of dependent beings to an independent being. The inherence relationship that explains the nature of mind in the *Objectiones tertiae* is governed by the general doctrine of the natural causation of effects or phenomena. This constitutes to my eyes the background of the Fourth Objection's definition of mind as "motions." Although it does not serve Hobbes's subsequent invalidation of Descartes' project of a

demonstration of the existence of God from the idea of God, the Fourth Objection's argument on mind is not a digression; rather, it completes the Second Objection's refutation of the Cartesian confusion of the subject of thought with its acts. The series of motions constituting the mind cannot be identified with a substance, it cannot be the same as its bodily subject: the mechanical mind is not a material mind.[50]

4. *Conatus* and Apparition

From *The Elements of Law* onward, Hobbes's basic thesis concerning cognitive acts is that their subject of inherence (the 'subject of mind' of the Second Objection) is "the sentient." The account of sense cognition, however, grows more sophisticated over the long period leading to the publication of *De corpore*. Hobbes attempts to give a more accurate meaning for "the sentient" (that which is said to see, to hear, etc.) than the whole perceiver's body. Not all of the parts of the perceiver's body are what has images or phantasms, so the material parts that properly underlie the acts of sense must be determined. As early as the *Anti-White*, they involve not only the brain, but also the heart. Considering the cohesion or continuity of matter between the parts of the perceiver's body, Hobbes holds that the motion propagated from an external thing into the parts of the cerebral matter reaches the innermost material parts of the heart, from which, in application of the mechanistic law that anything acted on reacts "at the same instant" to the motion that affects it, a retro-motion of resistance is propagated back to the brain, etc., and appears as something external.[51]

In the *Leviathan* in 1651, Hobbes sums up this by pointing out that the internal retro-motion is more properly an "endeavour," that is, a "small beginning of motion":

> The cause of Sense, is the Externall Body, or Object, which presseth the organ proper to each Sense . . .: which pressure, by the mediation of Nerves, and other strings, and membranes of the body, continued inwards to the Brain, and Heart, causeth there a resistance, or counter-pressure, or endeavour of the heart, to deliver it self: which endeavour because *Outward*, seemeth to be some matter without. And this *seeming*, or *fancy*, is that which men call *Sense*.[52]

The initial pressure necessarily presupposes motion in the external agent. Sensation thus consists merely in a motion-to-motion correspondence between the body perceived and the body that perceives:

> All . . . qualities called *Sensible*, are in the object that causeth them, but so many several motions of the matter, by which it presseth our organs diversly. Neither in us that are pressed, are they any thing else,

> but divers motions; (for motion, produceth nothing but motion.) But their apparence to us is Fancy.[53]

Yet this explanation proves to be insufficient when the causal-mechanistic analysis of sense cognition no longer pertains to the understanding of human nature that sets the stage for Hobbes's political theory, but to the argumentation about physics itself. In the *De corpore*, the *Physica* forms only the inquiry into the causes of the "Phenomena of Nature," not the whole of natural philosophy.[54] It is preceded by a *Philosophia prima*, providing the definition of motion as the universal cause of the accidents that inhere in bodies qua bodies; a *Geometria*, dealing with the effects of motion considered absolutely; and a treatise *De motu*, focusing on the effects of motion in body–body interactions. Furthermore, knowledge of the causes of natural phenomena cannot be deduced from any principles other than the natural phenomena themselves. The entirety of the science of physics must therefore be derived from the investigation of sensation, which is the principle of our knowledge of natural phenomena. Sensation or "apparition" (*to phainesthai*) has a foundational status in physics insofar as it constitutes the most basic phenomenon of all natural phenomena. A causal-mechanistic analysis of sensation is the precondition for knowledge of the possible causes of natural effects.

Now, our most fundamental sensory experience is that of the indefinite variety of the phantasms constantly arising within us, the experience of perpetual change:

> [O]ur phantasms or ideas are not always the same; but . . . new ones appear to us, and old ones vanish, according as we apply our organs of sense, now to one object, now to another. Wherefore they are generated, and perish. And from hence it is manifest, that they are some change or mutation in the sentient.[55]

Against this background, Hobbes delineates an explanatory model of the production of sensation in reference to a series of kinetic axioms from the *Philosophia prima* and the *De motu* of *De corpore*. He analyzes the way to the physical definition of sensation into three steps. First, he refers the generation and destruction of phantasms to the general theorem on the generation and destruction of accidents, which states that all change consists in some motion or *conatus* (endeavor) of the internal parts of that which is changed.[56] From this mechanistic principle, Hobbes is able to ascertain the "subject" of sense cognition. This constitutes the first component for a provisional definition of sensation:

> Sense in the sentient can be nothing other than a motion of some parts within the sentient. These moved parts are those of the organs by which we sense . . . We have therefore discovered the subject of

> sense, namely, that in which the phantasms are inherent, and we have also partially determined the nature of sense, namely, that it is some internal motion in the sentient.[57]

The other component is based (second step) on the causal principle that "motion can be generated only by a body contiguous and moved," which the *Philosophia prima* combines with a variant of the principle that any body at rest or in motion will be forever at rest or in motion unless some other body causes it to move or to be at rest.[58] It is impossible for a body by itself to account for the generation or destruction of a motion in it.[59] This makes it possible to determine the "object" of sensation. The cause of sensation is not limited to the pressure exerted on the patient's sense organ by the motion of an external body. In the body itself that is the external agent, this pressure has been propagated uninterruptedly from its imperceptible internal parts: they are that from which, "as from its primitive source," the phantasm is derived.

Moreover, Hobbes understands the organ of sense as a multipartite sensory system. It is not a single part of the body (the body's outermost part pressed from outside), but includes all of the parts of the sentient body through which the motion imparted from outside is propagated inward until it reaches the innermost part. This reconceptualization of the sense organ emphasizes the extension of the "subject" of sensation beyond the cerebral matter. The propagation of motion to the heart has become the sine qua non condition of sensation.[60]

A provisional definition of sensation, determining its subject and object, is thus obtained:

> Sense is some internal motion in the sentient generated by some motion of the internal parts of the object and propagated through intermediate parts until the innermost part of the organ.[61]

Sensation is temporarily defined by the correlation between the internal motion of its subject, the patient, and the internal motion of its object, the external body which is the agent.

Finally, the complete definition (third step) requires the additional consideration of what happens in the innermost part of the sense organ when motion propagated from outside reaches it: that is, there is resistance to this motion. This reaction must be understood, Hobbes states, as "an endeavor contrary to another endeavor."[62] In the *De motu*, endeavor was defined as an infinitesimal motion made "in less space and time than given": the beginning or first part of motion is an actual motion produced through an undivided space (a point) and an undivided time (an instant).[63] Resistance was accordingly defined as an endeavor contrary to another endeavor in the contact between two moved bodies. The pressure of a moved body on another body is an endeavor to make

either this entire body or some of its parts (as in the causation of sensation) to leave its/their place; it thus excites in it/them the opposition of another endeavor.[64] The causal-mechanistic definition of sensation can then restore the complete "order of its generation":

> Sense results from the endeavor toward outside of the sense organ generated by the endeavor toward inside from the object; this endeavor remaining for some time, the reaction produces a phantasm.[65]

Mere motion-to-motion correspondence proves to be insufficient for explaining sensation, for it leaves unexplained the relationship between "sense is nothing other than motion" and "sense is nothing other than fancy." How does the double reduction of sense cognition to a mechanistic process in both the subject of sensation and its object imply that sensation is an "apparition"? The fact that the motion in the perceiver's body is, because of its outward direction, to her an "appearance of externality," explains the "as if" of externality, not its apparition. As the *De corpore* shows, however, the explanation can still be mechanistic. The first beginning of motion or *conatus* is an actual motion, and a body can be moved only in time. Thus, the endeavor in the internal parts of the sentient that is contrary to the motion propagated from outside has a temporal quantity. Though this quantity is incalculably small, the non-quantified time of the resistance of the heart is nonetheless enough for the production of a phantasm. The epiphenomenon of the internal motion, its apparition, is thus explained as occurring in the infinitesimal space of time of an endeavor, the "point of time" signified by the *De corpore*'s formula "in an instant."[66] The instantaneous phantasm of externality gets a mechanistic account, and there is no theoretical gap between the assertion that sensation is nothing but "motion" and the assertion that sensation is nothing but "fancy."

5. Conclusion

For Hobbes, the causal-mechanistic account of sense cognition that is needed to refute the scholastic doctrine of intentional species must consist in an analysis that also invalidates two Cartesian positions. Hobbes both disowns the cerebral-imprint model for sense images and the thesis that the subject of the cognitive acts is the "I" identified with an immaterial mind. His own mechanistic explanation brings to the fore the phenomenon of the appearance to the perceiver of the motion in which a sensation consists. His anti-Cartesian stance on the issue of the definition of the mind does not commit him to defending a non-restricted materialism. Instead, he dissociates the non-material nature of the ideas of sensation and imagination (for him the only possible ideas), and of their mental sequences, from the material nature of the subject in which they inhere.

Moreover, the most elaborated version of his causal-mechanistic doctrine of cognition in the *De corpore* shows that his definition of sensation as a motion occurring in reaction to another motion unambiguously avoids the attribution of sensation to any matter at all that reacts to motion or is able to resist to a collision. The infinitesimal *conatus* which sensation fundamentally consists of cannot be reduced to the imperceptible beginning of a motion of reaction in matter. It occurs in a body endowed with organs (the "organic body" of the Fourth Objection's definition of mind). This is the decisive factor: in such a body, the motion by which a phantasm is produced in an instant persists for some time in the material parts which constitute the sense organ, so that, even when its object (the external agent) is removed the phantasm does not disappear. For this reason, apparition (*to phainesthai*), is "the most admirable of all phenomena": it means that among natural bodies, "some have in themselves images (*exemplaria*) of almost all things, whereas the others have none at all."[67] Sense cognition gets thus a more far-reaching dimension when it is approached as the very principle of physics. Its full explanation in the *De corpore* relates it to something more than just having the image of an external object:

> For by sense, we commonly understand some judgment that we make of objects by their phantasms, namely, by comparing and distinguishing their phantasms. This could not occur if that motion in the organ from which a phantasm arises did not remain for some time and if the phantasm itself did not come back sometimes. Therefore some memory, by which former and later phantasms may be compared and distinguished from each other, is necessarily adhering to sense.[68]

The causal-mechanistic account of sense cognition ultimately equates it with a pre-propositional kind of judgment, consisting of an immediate comparison between sense images. Hobbes's constant thesis that sense cognition encompasses all that is necessary for grounding the discursive status of the prelinguistic mind finds there its complete demonstration.

Notes

1. *Six Lessons to the Professors of the Mathematics*, Lesson VI (*EW*7, 339–41).
2. Hobbes criticized Descartes' *Dioptrique* (1637) in a fifty-six-page letter sent to Mersenne on November 5, 1640 (see Descartes' replies on January 21 and February 18, 1641), and in a manuscript on optics, presumably completed in the early 1640s, the *Tractatus opticus*, edited by Alessio in 1963.
3. *EW*7, 340.
4. It was nevertheless already known through Mersenne's *Ballistica* (in Mersenne 1644), whose *Praefatio* includes a long synopsis of chapter 30, §§3–26 of Hobbes's unpublished critique of Thomas White's *De mundo* (*AW*, 349–61).
5. Tönnies regarded *A Short Tract on First Principles* as Hobbes's first philosophical work, "an intermediate stage" between his scholastic training and

his discovery of mechanistic philosophy (*EL*, xii), but recent scholarship demonstrates that it should be attributed to Robert Payne. The *De homine* of 1658 replaces the causal analysis of the prelinguistic mental acts with an optical treatise. Accordingly, I leave both works aside.

6. *EL*, I.i.8.
7. *CSM2*, 121: "I acknowledge the correctness of this Meditation."
8. Ibid.
9. *EL*, I.ii.3.
10. *EL*, I.ii.4.
11. Ibid.
12. Ibid.
13. *EL*, I.ii.5.
14. *EL*, I.ii.7.
15. *EL*, I.ii.9.
16. *EL*, I.ii.8.
17. Ibid.
18. In his later debate on free will with John Bramhall, Hobbes calls it "a great paradox" for his scholastic adversary that "in all the senses, the object is the agent" (e.g., when we hear someone speaking, it is this speaker, not her voice, that is the object of hearing; the voice is nothing more than the act of hearing itself, "a fancy in the hearer"): *EW5*, 312. Cf. *TO*, 206. On Hobbes's distinction between "agent" and "cause," see Pécharman 2017, 31–35.
19. *EL*, I.ii.7. See Paganini 2008, chapter 4.
20. *EL*, I.ii.9.
21. *EL*, I.iii.1.
22. *CSM2*, 121.
23. See *Dco*, II.vii.1–2, viii.1; cf *AW*, III.1, XXVII.1. Also *AW*, 449–50, 474, 476 for the same hypothesis in preparatory manuscripts of *Dco*. See Leijenhorst 2002, chapter 3.
24. *CSM2*, 126 (Fifth Objection).
25. *CSM2*, 127. Cf. Descartes' reply to Hobbes's Seventh Objection, *CSM2*, 129; Definition 2 in the *Responsiones secundae*, *CSM2*, 113.
26. *CSM1*, 41–42.
27. *CSM1*, 105.
28. Ibid. Descartes summarizes this at the end of Discourse Five of the *Dioptrics*: see *CSM1*, 167; also Discourse Four, *CSM1*, 164–66.
29. *CSM2*, 125.
30. The example is that of "substance": cf. Hobbes's Ninth Objection, *CSM2*, 130.
31. *CSM2*, 125–26 (translation modified).
32. See the Fifth Objection on the inquiry into the causes of our images or ideas, leading finally to the conclusion that "something eternal must necessarily exist," of which we have "no idea" (*CSM2*, 127).
33. Compare *CSM2*, 126 and *AT7*, 178, 14–17.
34. *CSM2*, 126.
35. *EL*, I.iii.1. Cf I.iii.7.
36. *EL*, I.iv.1.
37. Ibid.
38. *EL*, I.iv.2 (cf I.v.1).
39. "Experience" is the "remembrance of what antecedents have been followed with what consequents" (*EL*, I.iv.6).
40. Compare *CSM2*, 122; *AT7*, 172, 12, 16–17 with *CSM2*, 18; *AT7*, 27, 13–14 (*praecise tantum*).
41. *CSM2*, 122.
42. Ibid.

43. Ibid. (translation modified).
44. See Z, 1, 1028a 20–31.
45. See also the Third Objection, *CSM2*, 125. Hobbes submits propositional discourse to a rule of coherence between names derived from the fundamental heterogeneity of a subject and its acts: see *AW*, 470–71.
46. Cf. the Ninth Objection against degrees of reality, *CSM2*, 130; *AW*, XXVII.1, 312–14.
47. *CSM2*, 122–23 (translation modified).
48. See Z, 3, 1029a 8–26.
49. See *CSM2*, 123: "I left it [sc. the incorporeity of the thinking thing] undecided until the Sixth Meditation, where it is proved."
50. See *TO*, 207: against Descartes' assertion that "it is the soul that senses, not the body," Hobbes states: "Since vision is formally and really nothing other than motion, it follows that also that which sees is formally and precisely nothing other than that which is moved, that is, some body; for nothing besides body, that is, besides something material, endowed with dimensions and delimitable by place, can be moved." This does not attack Cartesian dualism by saying that the mind is corporeal (*pace* Malcolm 2002, 14), but by understanding the soul as some part of the animal body. Hobbes does not equate "soul" (*anima*) and "mind" (*animus* or *mens*). See the Seventh Objection: "soul" is the name for those innermost parts of the human body (of which therefore we have "no idea at all") that impart animal motion to it and are that by which it senses and is moved (the translation in *CSM2*, 129 must be corrected; cf. *AT7*, 183, 17–19).
51. See *AW*, XXVII.19, 326–27; XXX.3, 349–50. Cf *TO*, 206.
52. *Lev* I.i, Hobbes 2012 (2), 22. Endeavor is defined in I.vi, 78 (cf *AW*, XIII.2, 194–95).
53. *Lev* I.i, 24. *Cf* AW, VII.1, 146, for the reciprocal of "motion only produceth motion": "motion can be produced only by motion."
54. *Dco*, IV.xxv.1, 267–68 (cf I.vi.6, 61).
55. Ibid.
56. *Dco*, I.ix.9, 99 (cf *AW*, V.1, 128–29).
57. *Dco*, IV.xxv.2, 269.
58. *Dco*, IV.xxv.3, 269; II.ix.7, 97–98 (cf *AW*, XX.8, 251, XXVII.9, 319–20), II.viii.19, 91. Jesseph 2006 calls them "the principle of action by contact" and "the 'persistence principle,' " Hobbes's "version of the inertial principle."
59. See the definition of cause in *Dco*, I.vi.10, 64, II.ix.3, 96. For a demonstration *per impossibile* of the necessary exteriority of cause, see *AW*, XXVII.5, 317.
60. See *Dco*, IV.xxv.4, 270: if the motion cannot be propagated beyond the brain to the heart, "no sense follows."
61. *Dco*, IV.xxv.2, 269.
62. Ibid.
63. *Dco*, III.xv.2, 155.
64. Ibid.
65. *Dco*, IV.xxv.2, 269.
66. See *Dco*, IV.xxv.3, 270.
67. *Dco*, IV.xxv.1, 268.
68. *Dco*, IV.xxv.5, 271.

Literature

Descartes, René. *Meditationes de prima philosophia*. In *Oeuvres de Descartes*, edited by Charles Adam and Paul Tannery, vol. VII [*AT7*]. Paris: Vrin, 1964.

———. *The Philosophical Writings of Descartes*. Translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch, vol. I [*CSM1*] and vol. II [*CSM2*]. Cambridge: Cambridge University Press, 1984, 1985.

Hobbes, Thomas. *The English Works of Thomas Hobbes*. Edited by William Molesworth. London: John Bohn, 1839–1845. [*EW*].

———. *The Elements of Law Natural and Politics*. Edited by Ferdinand Tönnies. London: Simpkin, Marshall, & Co., 1889. [*EL*].

———. *Tractatus opticus* [*TO*]. Edited by Franco Alessio. *Rivista critica di storia della filosofia* 18, no. 2 (1963): 147–228.

———. *Critique du De mundo de Thomas White*. Edited by Jean Jacquot and Harold Whitmore Jones. Paris: Vrin, 1973. [*AW*].

———. *De corpore*. Edited by Karl Schuhmann. Paris: Vrin, 1999. [*Dco*].

———. *Leviathan: The English and Latin Texts*. Edited by Noel Malcolm. Oxford: Clarendon Press, 2012. [*Lev*].

Jesseph, Douglas. "Hobbesian Mechanics." *Oxford Studies in Early Modern Philosophy* 3 (2006): 119–52.

Leijenhorst, Cees. *The Mechanisation of Aristotelianism: The Late Aristotelian Setting of Thomas Hobbes' Natural Philosophy*. Leiden: Brill, 2002.

Malcolm, Noel. *Aspects of Hobbes*. Oxford: Clarendon Press, 2002.

Mersenne, Marin. *Cogitata Physico-Mathematica*. Paris: Antoine Bertier, 1644.

Paganini, Gianni. *Skepsis: Le débat moderne sur le scepticisme*. Paris: Vrin, 2008.

Pécharman, Martine. "Hobbes's *De corpore* on Modalities and Its Contemporary Critiques." *Hobbes Studies* 30, no. 1 (2017): 28–57.

9 Knowing Mind Through Knowing Body

Spinoza on Causal Knowledge of the Self and the External World

Daniel Garber

1. Introduction

In the beginning of part II of his *Ethics*, after having introduced his account of the mind as the idea of the body, Spinoza turns to his account of sensation and imagination. He begins with the observation that "The human Mind is capable of perceiving a great many things, and is the more capable, the more its body can be disposed in a great many ways" [E2p14].[1] Then follows a series of propositions and scholia in which Spinoza sets out an account of the way in which we become aware of bodies in the external world by way of their causal impingement on our own, and the changes that these impingements produce on our bodies. This sensory knowledge is what he will call "knowledge of the first kind" [E2p40s2]. That sensory knowledge involves the causal impingements of external things on the body is not surprising; this, in a way, is a lesson that Spinoza learned directly from Hobbes, whose account of cognition in *De corpore* was a direct influence on Spinoza, as I will suggest in more detail below. But what is more surprising is that for Spinoza the knowledge we have of our own bodies and minds comes at least in the first instance in the same way, from the ideas we have of the impingements of external bodies on our bodies. Later, as we move from knowledge of the first kind, through knowledge of the second to intuition or knowledge of the third kind, we can gain a different kind of knowledge of ourselves, both more certain and more direct. But unlike for Descartes, for whom the direct intuitive access to the thinking self is "the first and most certain of all [truths] to occur to anyone who philosophizes in an orderly way,"[2] for Spinoza, it is an achievement that comes only at the end of a long and difficult process.

I will begin (Section 2) with a brief review of Spinoza's account of the mind and its relation to body, as well as his account of sense experience and imagination. Particularly important here is the difference Spinoza notes between the idea I have of my own body, and the idea I have of the body of another person. For Spinoza, my mind (the idea of my body) directly displays my own body (in a sense to be discussed) while my idea of the body of

another only "involves" its nature (again, in a sense to be discussed). This raises the question as to whether I have privileged access to my own body (Section 3). Though my relation to my own body is different from my relation to the bodies of other people, when we are considering only knowledge of the first kind, Spinoza argues that there is a sense in which I know my own body—and, importantly, my own mind as well—in a way parallel to the way in which I know the bodies and minds of others, through the mediation of external sensory impingements on my body. I end by contrasting the knowledge I have of my mind through knowledge of the first kind with the direct and intuitive knowledge I have of myself through knowledge of the third kind. In the end, I argue, Spinoza approaches Descartes' *cogito*, though only after attaining beatitude (Sections 4–5).

2. Minds, External Bodies, and One's Own Body

First some very brief reminders about Spinoza's metaphysics, particularly as it relates to the human mind. For Spinoza, of course, there is only one substance, God [E1p14]; all other things (*res*) are modes of God [E1p15]. Though Spinoza's God has multiple attributes, an infinity of them, in fact [E1d6], we are only acquainted with two: extension and thought.[3] And so Spinoza argues that the modes of extension (bodies) and the modes of thought (ideas) are in some sense identical to one another:[4]

> whatever can be perceived by an infinite intellect as constituting an essence of substance pertains to one substance only, and consequently that the thinking substance and the extended substance are one and the same substance, which is now comprehended under this attribute, now under that. So also a mode of extension and the idea of that mode are one and the same thing, but expressed in two ways. . . . Therefore, whether we conceive nature under the attribute of Extension, or under the attribute of Thought, or under any other attribute, we shall find one and the same order, or one and the same connection of causes, i.e., that the same things follow one another.
>
> [E2p7s]

It is in this context that Spinoza presents his account of mind and its relation to the body:

> The first thing that constitutes the actual being of a human Mind is nothing but the idea of a singular thing which actually exists.
>
> [E2p11]

> The object of the idea constituting the human Mind is the Body, or a certain mode of Extension which actually exists, and nothing else.
>
> [E2p13]

The human mind is, then, the idea of the human body. That is, the human mind and the human body are "one and the same" mode of substance, understood through different attributes, the body understood through extension and the mind through thought.

The human mind is the idea of the human body. But, more generally, in Spinoza's metaphysics, every body (mode of extension) has a corresponding idea (mode of thought). And if that is the case, then it would seem as if every body has a mind in just the same way that the human body has one. Spinoza writes:

> the things we have shown so far are completely general and do not pertain more to man than to other Individuals, all of which, though in different degrees, are nevertheless animate. For of each thing there is necessarily an idea in God, of which God is the cause in the same way as he is of the idea of the human Body. And so, whatever we have said of the idea of the human Body must also be said of the idea of any thing. [E2p13s]

What follows then is what is sometimes called Spinoza's "Short Physical Treatise," or SPT, a series of axioms and lemmas and a single definition (that of an individual) concerning body in general. This, in turn, is followed by a series of postulates that concern the human body in particular.[5] Since every mode of extension (every body) has a corresponding mode of thought which can be construed as its mind, we can only learn what is distinctive about the human mind by discovering what is distinctive about the human body. It is in this connection that our causal and cognitive connections with a world of bodies is broached.

First of all, Spinoza notes, the human body is an individual that is "composed of a great many individuals of different natures, each of which is highly composite." Furthermore, the human body interacts with other bodies external to it; it is "affected [*afficitur*] by external bodies in very many ways" and, in turn, "the human Body can move and dispose external bodies in a great many ways" [Postulates I, III, VI following E2p13s, G II 102–3 (C I 462)]. In this context, Spinoza addresses some questions concerning the way in which the human mind (the idea of the human body) relates to the ideas of external bodies, and how it is that through this interaction the human mind becomes acquainted with these external bodies.

Spinoza considers the human body, situated among other bodies in the world. Bodies external to mine impinge upon my body, causing changes in it. This impingement—what Spinoza calls an "*affectio*"—results in a state of my body which is jointly determined by the nature of the body impinging and by the nature of my own body:

> The idea of any mode in which the human Body is affected by external bodies must involve [*involvere*] the nature of the human Body and at the same time the nature of the external body. [E2p16]

In ordinary English, "to involve" is a very vague term. But I think that Spinoza means it here in a more precise and technical sense. "*Involvere*" is connected with "*volvere*," to roll or wrap. In this context it might be translated literally as "to wrap up" or "envelop."[6] I think that what Spinoza means to be saying in this proposition is that the idea of a state of a human body affected by an external body has wrapped up within it, as it were, both (the idea of) the nature of the human body and (the idea of) the nature of the impinging body. It isn't entirely clear what exactly Spinoza might mean by saying that the idea of the affection has, wrapped up in it the (ideas of) both natures. At the very least, I think he means that the state of my body as affected by the external body is a result both of *my* nature and the nature of the external thing impinging on it. But, as we shall see below, I suspect that he also means to say that from a consideration of (the idea) of my body externally impinged upon in that way, I can recover a kind of knowledge both of my own nature, and of the body externally impinging on mine.

From this Spinoza draws some conclusions:

> From this it follows, first, that the human Mind perceives [*percipere*] the nature of a great many bodies together with the nature of its own body.
>
> [E2p16c1]

(We will return to the notion of perception below.) And in addition:

> It follows . . . that the ideas which we have of external bodies indicate [*indicant*] the condition of our own body more than the nature of the external bodies.
>
> [E2p16c2]

So it appears that the impingement of external bodies on my body results in my mind (the idea of my body) being in a state that *involves* the nature of the external bodies, in which it *perceives* external bodies [E2p16c1], and has *ideas of* them [E2p16c2]. Furthermore, the ideas I have of external things through the external impingement of bodies should be thought of more as *indicating* my own body in a state of being affected than as a direct idea of an external thing. This is what Spinoza calls imagination:

> to retain the customary words, the affections of the human Body whose ideas represent [*repraesentant*] external bodies as present to us, we shall call images of things, even if they do not reproduce the figures of things. And when the Mind regards bodies in this way, we shall say that it imagines.
>
> [E2p17s]

This external impingement or affection causes the mind to regard a given external body as being present to it until there is another external affection that excludes the body in question:

> For so long as the human Body is so affected, the human Mind . . . will have the idea of a mode that actually exists, an idea that involves the nature of the external body, i.e., an idea that does not exclude, but posits, the existence or presence of the nature of the external body. And so the Mind (by E2p16c1) will regard the external body as actually existing, or as present, until it is affected.
>
> [E2p17d]

In this way the idea of my body as impinged on by an external body has an idea that involves the nature of the external body (as well as the nature of my own body) and represents that body as present to me.

In E2p16–p17, Spinoza is presenting what appears to be an account of sense perception. My body "is composed of a great many individuals of different natures, each of which is highly composite" [Postulate I following E2p13s, G II 102 (C I 462)]. And so, my body is "affected by external bodies in very many ways" [Postulate III following E2p13s, G II 102 (C I 462)]. When an external body impinges on my body, presumably through one of the sense organs, be it eyes, ears, touch, or whatever, it causes a change in my body. Since bodies for Spinoza are extended things, and the impingements of one body on another can only involve changes in motion, the changes in my body caused by the impingement of another can only be a change in the motion of the parts that make up my body. This will cause my body to be in a different state from the way it was before the impingement, of course. (How exactly bodies in motion behave is treated in outline in the SPT.) But the particular details of the change of state will depend on the nature of my body, as well as the nature of the impinging body; this is the content of E2p16.

What does Spinoza mean by "nature" here? For this we need to look briefly at Spinoza's conception of an individual in the SPT. There the individual is given a rigorous metaphysical definition:

> Definition: When a number of bodies, whether of the same or of different size, are so constrained by other bodies that they lie upon one another, or if they so move, whether with the same degree or different degrees of speed, that they communicate their motions to each other in a certain fixed manner [*certa quadam ratione*], we shall say that those bodies are united with one another and that they all together compose one body or Individual, which is distinguished from the others by this union of bodies.
>
> [Definition following E2p13s, G II 99–100 (C I 460)]

One way of forming a complex individual from parts is to constrain them externally, such as putting a bunch of monkeys in a barrel. But more interesting are individuals that are formed from parts that "communicate their motions to each other in a certain fixed manner." One supposes that each individual monkey in the barrel satisfies this definition, as do all other living things. The "certain fixed manner" in question here, what Spinoza calls the "*ratio motus et quietis*" in other passages, emerges as the primary characterization of this technical sense of individuality later in the *Ethics*.[7] In some of his earliest writings, Spinoza talks of a *proportion* (or *proportie*, in Dutch) of motion and rest, and clearly has a numerical ratio in mind.[8] But in the *Ethics*, it seems something quite different. The *ratio* in question seems to be a kind of definition or principle of organization, broadly conceived, something that is fully consistent with the breadth and imprecision of the Latin "*ratio*." Very roughly, an individual is a collection of smaller parts that are organized in such a way that they maintain a constant relation or structure of motion and rest with respect to one another, that is, a constant *ratio motus et quietis*.[9] This is, admittedly, somewhat vague, but I suspect that Spinoza himself didn't know exactly what that structure might be like. I suspect that he thought of the *ratio motus et quietis* as a kind of place holder for whatever homeostatic structures future generations might come to identify as the broadly mechanical relations among parts of complex bodies that define their individuality. This, I think, is what Spinoza has in mind when he talks about the nature of a body in the passages that I quoted earlier. So, the state of the body after an impingement by an external body is defined by the *rationes motus et quietis* of the two bodies in question, my own human body, and the external impinging body.

After the impingement, the state of my body is jointly determined by the natures of the two bodies in question, mine and the external body that impinged on mine. When I sense a cup, for example, the resulting state of my body will be determined in part from my own *ratio motus et quietis*, and in part from the *ratio* of the cup. (It is important, though, that even if my state is altered by the impingement of an external body, I still retain my own distinctive *ratio motus et quietis*, otherwise I will lose my own identity. See E4p39s.) My sensation of the cup, then, is the idea of my body in this post-impingement state. In sensation, I learn about the nature of other bodies, then, by the way in which they alter my own. (Note that I am talking about the *idea* I have of my own nature of that of an external body: it is premature to call it knowledge, either *cognitio* or *scientia*; a question that will come later.)

There are certainly differences between this account of sense perception and that of Hobbes, in, for example, chapter 25 of his *De corpore*. Hobbes, for example, offers a much more elaborate account of the exteriority of the impinging body than does Spinoza.[10] But even so, I think that the inspiration for Spinoza's account is likely Hobbes: for

both Spinoza and Hobbes, sensation is just the transmission of motion from one body to another body that has sufficient internal complexity to react in a complex way. As the argument progresses, though, we will see at least one other feature of Spinoza's view that reflects its possible Hobbesian roots.

This, in essence, is Spinoza's account of how our causal interactions with the world of external bodies gives rise to the ideas we have of bodies outside of us. The view is further clarified by comparing the idea I have of my own body, what Spinoza considers my mind, with the idea that a different person has of my body. This is what he writes:

> Furthermore [from E2p17c and E2p16c2], we clearly understand what is the difference between the idea of, say, Peter, which constitutes the essence of Peter's mind, and the idea of Peter which is in another man, say in Paul. For the former directly displays [*directè explicat*] the essence of Peter's body, and does not involve existence, except so long as Peter exists; but the latter indicates the condition of Paul's body more than Peter's nature, and therefore, while that condition of Paul's body lasts, Paul's Mind will still regard Peter as present to itself, even though Peter does not exist.
>
> [E2p17s][11]

It is important to note here Spinoza's philosophical vocabulary. "*Explicare*" is usually translated as "to explain," and often this is exactly what it means. But when Spinoza here talks about an idea that "*directè explicat*" the nature of a body in E2p17s, it is better translated as "directly displays" or "directly exhibits" that nature. What is important here is that Peter's idea of Peter's body, that is to say his mind, which is *identical* with the finite mode that is his body, but understood through the attribute of thought, *directly displays* the nature of Peter's body. It is *identical* with Peter's body, though grasped through a different attribute. But the idea of Peter as it exists in Paul is quite a different matter. As Spinoza puts it, it "indicates the condition of Paul's body more than Peter's nature." It is just the idea of the state of Paul's body as it is impinged upon by, for example, light rays that come from Peter's body. As such, it is a state of Paul's body that by E2p16 *involves* [*involvit*] the nature of Peter, though it doesn't *display* [*directè explicat*] it, in the way in which Peter's idea of Peter does. The relation between these two verbs is interesting. "*Explicare*" is connected with the verb "*plicare*," "to fold" or "to wind up"; literally, "*explicare*" could be translated as "unfold" or "unwind." And, as I pointed out earlier, "*involvere*," on the other hand, is connected with "*volvere*," "to roll" or "to wrap up." As such, "*explicare*" and "*involvere*" are, in a way, opposites. Peter's idea of his own body "*directé explicat*" his nature insofar as it unfolds it directly, while Paul's idea of Peter's body "*involvit*" the nature of Peter's body insofar as it envelopes

or wraps the nature of Peter's body up in the state of Paul's body that is the result of the external impingement of Peter's body on Paul's.

3. Perception and the First Kind of Knowledge

This leads us to the question of the knowledge of self in Spinoza. The passage about Peter and Paul in E2p17s would seem to suggest that each individual has a privileged access to the nature of his or her own body: my mind *directly displays* the nature of my body in a way in which *your* idea of my body only *involves* the nature of my body in the technical sense of including it in the idea of the state of your body following the external impingement on my sense organs. That would seem to imply that Peter *knows* his own body in a direct and more certain way than Paul knows Peter's body. However, matters are more complicated than that. And here is where another bit of Spinoza's philosophical vocabulary enters: the distinction between *perception* and *knowledge*. While Spinoza isn't always consistent here, one finds, in at least some crucial passages, a distinction between "perceiving" something (*percipere*), and "knowing" it, either in the weaker sense of being acquainted with it (*cognoscere*) or in the stronger epistemic and proposition sense of knowing that it exists (*scire*).

Peter's mind *displays* [*explicat*] the nature of his own body. And by at least one definition of perception that Spinoza seems to give, one would suppose that it *perceives* the body as well.

> when we say that the human Mind perceives [*percipere*] this or that, we are saying nothing but that God, not insofar as he is infinite, but insofar as he is displayed [*explicatur*] through the nature of the human Mind, or insofar as he constitutes the essence of the human Mind, has this or that idea.
>
> [E2p11c][12]

Indeed, on this definition of perception, because the mind contains ideas of all of the parts of the body, the human mind perceives everything that happens in the human body:

> Whatever happens in the object of the idea constituting the human Mind must be perceived [*percipi*] by the human Mind, or there will necessarily be an idea of that thing in the Mind; i.e., if the object of the idea constituting a human Mind is a body, nothing can happen in that body which is not perceived [*percipiatur*] by the Mind.
>
> [E2p12]

This, of course, seems quite paradoxical. There is much that goes on in the human body that we don't seem to be aware of, for example, the

secretions that are happening at this moment in my pancreas. How can Spinoza say that I am perceiving *that*? (This is the famous "Pancreas Problem" that has vexed recent commentators.)[13]

Here is where the distinction between perception and knowledge enters. Even though I *perceive* my body directly through an idea that displays its nature, and even though I perceive everything that is going on inside my body, Spinoza claims that I don't thereby have *knowledge* of it:

> The human Mind does not know [*cognoscit*] the human Body itself, nor does it know [*scit*] that it exists, except through ideas of affections by which the Body is affected.
>
> [E2p19]

Though we have *perceptions*, those perceptions don't necessarily constitute *knowledge*.[14]

Why does Spinoza say this? As is often the case in the *Ethics*, later uses of earlier propositions offer important clarifications of what the earlier text means. Later in the *Ethics* Spinoza makes reference back to E2p19 (as well as E2p23, to which we will turn shortly) giving a paraphrase that clarifies matters in an interesting way:

> man (by E2P19 and E2P23) is conscious [*conscius*] of himself through the affections by which he is determined to act.
>
> [E3p30d]

This suggests that in E2p19, knowledge, both "*cognoscere*" and "*scire*," entails conscious awareness.[15] This suggests that for Spinoza, mere perception does not necessarily entail conscious awareness. The suggestion seems to be that the perceptions in the mind of which we are consciously aware are those that derive from external impingements of external bodies, while other perceptions are not conscious. Strange as this may seem, put in its proper context, it is not unprecedented. First of all, there is a long history, both before and after Spinoza, of philosophers who thought that perception was widespread in nature, even in inanimate things, though not necessarily conscious. One can find a view like this in Telesio and Bacon, not to mention Leibniz.[16] But perhaps more directly relevant is Hobbes, for whom the only motions in the brain that constitute sense, and of which we are aware, properly speaking, are those that are due to the external stimulation of the sensory organs.

Hobbes faced a problem that is very much like Spinoza's Pancreas Problem. For Hobbes, "sense . . . can be nothing else but motion in some of the internal parts of the Sentient."[17] As the motion from the sense organs is propagated to the internal parts of the brain, it eventually meets resistance from the motions that are already in the parts of the brain. From the interaction of the motion coming inward from the sense organs

and the motion already in the parts of the brain arises a phantasm or idea: "from the reaction, how little soever the duration of it be, a phantasm or idea hath its being."[18] This "phantasm or idea" is the sensation of which we are aware. But this gives rise to an interesting question:

> But though all sense, as I have said, be made by reaction, nevertheless it is not necessary that every thing that reacteth should have sense. I know there have been philosophers, and those learned men, who have maintained that all bodies are endued with sense. Nor do I see how they can be refuted, if the nature of sense be placed in reaction only.[19]

In order to rule out the conclusion that everything in which there is internal motion has sense, Hobbes elaborates his account of sensation. He notes that to have a sensation, that is, a phantasm of which we are aware, we have to be able to compare our present experience with past experiences. This requires memory, which limits sense to bodies of sufficient complexity, "for unless those bodies had organs, as living creatures have, fit for the retaining of such motion as is made in them, their sense would be such, as that they should never remember the same."[20] Furthermore, Hobbes argues, sense must involve a variety of changing phantasms:

> Sense, therefore, properly so called, must necessarily have in it a perpetual variety of phantasms, that they may be discerned one from another. For if we should suppose a man to be made with clear eyes, and all the rest of his organs of sight well disposed, but endued with no other sense; and that he should look only upon one thing, which is always of the same colour and figure, without the least appearance of variety, he would seem to me, whatsoever others may say, to see, no more than I seem to myself to feel the bones of my own limbs by my organs of feeling; and yet those bones are always and on all sides touched by a most sensible membrane. I might perhaps say he were astonished, and looked upon it; but I should not say he saw it; it being almost all one for a man to be always sensible of one and the same thing, and not to be sensible at all of any thing.[21]

In this way Hobbes explains why we are sensible (aware) of the changing world of the external senses, but not aware of the internal and unchanging state of the body, even though it may cause motions in the brain.

There is no direct proof that Spinoza knew these passages from Hobbes's *De corpore*. But I would be astonished if he didn't. It was published in Latin in 1655, and thus available to him long before beginning the *Ethics*. Furthermore, I would argue, the physics of the SPT, often considered Cartesian, actually reflects the physics of the *De corpore* much more closely than it does the physics of Descartes' *Principia philosophiae*.[22] It is

also clear that Spinoza doesn't explicitly appeal to Hobbes's explanation for why we are aware of the sensations of a changing world of external causes but not of other motions in the brain. But it does constitute a precedent for the position that Spinoza sustains in E2p19, as interpreted in terms of consciousness through E3p30d. One might note that it can happen that there are internal changes in the body that *do* make their way to awareness, kidney stones or a heart attack, for example. While they don't count as sensory impingements of external bodies, I think that they can be accommodated in slightly elaborated versions of both Hobbes's and Spinoza's accounts. But even so, it seems plausible that in his limiting knowledge or conscious perception to the impingements of external bodies on our own, Spinoza saw himself as following Hobbes's lead.

If, indeed, Spinoza does hold this view, then we have a ready resolution of the Pancreas Problem. Without entering into general questions about consciousness in Spinoza, it is enough to point out that the later gloss of E2p19 in E3p30d suggests that though we may *perceive* everything that happens in the body, we are only *aware* of the external impingements of other bodies on our own, that is, of the changes that external bodies make on my own.

An interesting consequence of this discussion is that for Spinoza, even though my mind is the idea of my body and displays its nature in the sense discussed earlier, nevertheless I don't have privileged access to my body. Even though Peter's *idea* of his own body is completely different from Paul's idea of Peter's body, Peter's *knowledge* of his own body isn't all that different from Paul's knowledge of Peter's body. Neither is Peter's knowledge of his own body that much different than his knowledge of external bodies. Peter knows external bodies through sensation. The idea he has of a tree in front of him *involves* the nature of the tree; as I noted above, this is what gives Peter access to the nature of the tree. But that same sensory experience *also involves* the nature of his own body [E2p16]. And, Spinoza claims [E2p19], *that is exactly the way he has cognitive access to the nature and existence of his own body*. His claim is that Peter is only (consciously) aware of the nature of his own body when he is in a state of sensory awareness of something outside of himself, such as the tree. And just as his knowledge of the nature of the tree is *involved* in that sensory state, *so is his own nature*. The knowledge of both is thoroughly causal, known only because of the causal processes that constitute sensory connection with the external world, which puts Peter in a state that involves both his own nature and that of the tree. And because of the unavoidable mixture of knowledge of his (and my) nature with knowledge of external things, in both cases the knowledge is inadequate.[23]

So far we have been talking about Spinoza's views on knowledge of bodies, both my own body and those external to my body. As I have argued, Spinoza's views on this seem to be pretty clear extensions of views found in Hobbes. But Spinoza extends the discussion of the causal

knowledge of bodies in a way that goes beyond what Hobbes attempted to establish: for Spinoza it is not only knowledge of the world of bodies (including my own) that is causal, but at least on one level, in the context of knowledge of the first kind, knowledge of my own mind as well.

In E2p19, Spinoza argues that the knowledge I have of my body, both its nature and its existence, comes by way the ideas I have of the affections of my body, that is, through my sensations, the states of body that I am in by virtue of external impingements: I know what I am and even *that* I am only by virtue of my sensory awareness of the other bodies around me. That is to say, I know that my body exists because I am sensing the cup now on my desk, and I know the nature of my body only because if its contribution to the sensation I am currently having of the cup. In a later proposition, Spinoza extends this to my knowledge of my own mind as well:

> The Mind does not know [*cognoscit*] itself, except insofar as it perceives [*percipit*] the ideas of the affections of the Body.
>
> [E2p23]

The argument here draws directly on E2p19, as one might expect. The idea is that just as the idea of my body comes to me mixed with the ideas I have of external bodies, the idea I have of the idea of my body, that is, the idea I have of my mind, comes to me in the mix with the ideas we have of external bodies. And again, later references to this proposition establish that by *cognitio* here, Spinoza has in mind conscious awareness. In addition to E3p30d, where Spinoza interprets E2p23 in terms of conscious awareness, Spinoza writes:

> the Mind (by E2p23) is necessarily conscious [*conscia*] of itself through ideas of the Body's affections.
>
> [E3p9d]

Just as I am aware of my own body through the ideas of the external impingements on it that I am aware of, I am aware of my mind, that is, I have a conscious idea of the idea of my body, through those same ideas of the external impingements.

This seems to be a direct response to Descartes and the strategy of the *cogito*. For Descartes, I discover myself by shutting my eyes, stopping my ears, and withdrawing from all my senses. But for Spinoza, it is exactly the opposite. It is only because of my causal engagement with the outside world that I have the cognitive access that I do to my own mind.

4. Ascending to the Third Kind of Knowledge

However, the story is not over. The kind of causal knowledge of ourselves and the world that is at issue in the beginning of E2 is what Spinoza calls

knowledge [*cognitio*] of the first kind, which includes knowledge derived "from singular things which have been represented to us through the senses in a way that is mutilated, confused, and without order for the intellect" [E2p40s2]. If we consider only knowledge of the first kind, then this is how we can know ourselves, through our senses, that is, though the ideas of things as they impinge on our bodies, the nature of our bodies mixed up with the natures of the external things that happen to act on our bodies. Knowledge of the first kind is notoriously inadequate: "to knowledge of the first kind pertain all those ideas which are inadequate and confused; and so . . . this knowledge is the only cause of falsity" [E2p41d]. Though knowledge, of a sort, the causal knowledge I have of my body and my mind is of exactly the same kind—and exactly as inadequate—as the sensory knowledge I have of external bodies. Which is to say, it isn't adequate at all.

But, of course, knowledge of the first kind is only one of three kinds of knowledge that Spinoza acknowledges. Spinoza uses the mathematical example of finding the missing fourth proportional to illustrate the three kinds of knowledge: given three numbers to find a fourth which is in the same ratio to the third as the second is to the first. The person who works from knowledge of the first kind is compared with the person who learned a rule for solving the problem from a teacher (authority) or came up with a rule through experience. Knowledge of the second kind is derived from "common notions and adequate ideas of the properties of things." This is what Spinoza calls reason. The example here is the person who solves the problem of the missing proportional by proving a theorem from Euclid. It is plausible to suppose that the *Ethics* itself, in the form of Euclidean geometry constitutes knowledge of the second kind. Knowledge of the third kind is knowledge that "proceeds from an adequate idea of the formal essence of certain attributes of God to the adequate knowledge of the essence of things." This kind of knowledge, what Spinoza calls "intuitive knowledge" [*scientia intuitiva*] is notoriously elusive. In his mathematical example, knowledge of the third kind is characterized as knowledge of the missing proportional that we can directly see simply by inspecting the three numbers given. In a later proposition, Spinoza contrasts knowledge of the third kind with knowledge of the second insofar as the former deals with "singular things," while the latter is a kind of "universal knowledge" [E5p36s]. The suggestion there is that intuition involves showing not merely that everything derives directly from God, both in essence and existence, but in understanding exactly *how* a given individual is so connected:

> For although I have shown generally in Part I that all things (and consequently the human Mind also) depend on God both for their essence and their existence [i.e., knowledge of the second kind], nevertheless, that demonstration, though legitimate and put beyond all

> chance of doubt, still does not affect our Mind as much as when this is inferred from the very essence of any singular thing which we say depends on God [i.e., knowledge of the third kind].
>
> [E5p36s]

However we resolve the interpretative problems, it is clear that attaining knowledge of the third kind is the ultimate goal of the *Ethics*, and of life: "The greatest striving of the Mind, and its greatest virtue is understanding things by the third kind of knowledge" [E5p25]; "The greatest satisfaction of Mind there can be arises from this third kind of knowledge" [E5p27]. This is what Spinoza calls a state of beatitude.

As we approach beatitude, and knowledge of the third kind, we come to a very different conception of mind and body than the one derived from sensation in E2. In the beginning of the intellectual journey toward beatitude, my mind and my body are objects in time, which I came to know through the causal processes of sense experience. But at the end of the program, I attain a rather different perspective on myself. Spinoza claims that there are two ways of conceiving of something's existence:

> We conceive things as actual in two ways: either insofar as we conceive them to exist in relation to a certain time and place, or insofar as we conceive them to be contained in God and to follow from the necessity of the divine nature. But the things we conceive in this second way as true, *or* real, we conceive *sub specie aeternitatis*, and to that extent they involve the eternal and infinite essence of God.
>
> [E5p29s][24]

This, then, is how I conceive of myself through knowledge of the third kind:

> Therefore, though we do not recollect that we existed before the body, we nevertheless feel [*sentimus*] that our mind, insofar as it involves the essence of the body *sub specie aeternitatis*, is eternal, and that this existence it has cannot be defined by time *or* explained through duration.
>
> [E5p23s]

Spinoza concludes:

> Therefore, the more each of us is able to achieve in this kind of knowledge, the more he is conscious [*conscius*] of himself and of God, i.e., the more perfect and blessed he is.
>
> [E5p31s]

In this way, through the third kind of knowledge, we come to a knowledge of the mind and the body, not through the senses, and not in time,

but *sub specie aeternitatis* and through intuition, through understanding how as particulars they derive from God.

5. Conclusion

In the beginning of the project, when we are just sorting things out through knowledge of the first kind, we have a knowledge of our bodies and our minds through the causal process of sensation and imagination: we know ourselves, body and mind through the same means as we know the external world. But by the end of Spinoza's project, through intuition, knowledge of the third kind, we come to a different, deeper, and more adequate knowledge of ourselves. I don't want to suggest that even at the end the conception of mind that we attain is very close to Descartes' conception of mind: for Spinoza, the mind is always the idea of the body, and always complex, composed of the ideas of the parts of the body of which it is the idea [cf. E2p15]. It is an intuitive grasp not of a simple and indivisible thinking substance but of the essence of the body, conceived *sub specie aeternitatis*. However, like Descartes' *cogito*, it is a direct intuitive grasp of the mind through intuition. But whereas it is the first thing we know in Descartes, the beginning of knowledge, it is among the final attainments in Spinoza.[25]

Notes

1. As much as possible, references to Spinoza's *Ethics* are given in brackets in the text. References to the *Ethics* begin with "E," followed by the part in Arabic numerals, then 'p' for proposition, 'd' for demonstration, 's' for scholium, etc. All translations of the *Ethics* are taken from vol. 1 of Curley's edition and translation, Spinoza 1985–2016, with departures from Curley's translations noted.
2. Descartes, *Principia philosophiae* I.7, in Descartes 1996, vol. VIIIA, p. 7; translated in Descartes 1984–91, vol. 1, p. 195.
3. See, e.g., Spinoza to Schuller, July 29, 1675, G IV 277–78 (C II 438).
4. I say "in some sense" since there is a dispute in the literature about whether Spinoza really means that they are numerically identical, or identical in some other way. See, e.g., Colin Marshall 2009; Garrett 2017; Morrison 2017. I'm not convinced, though it does raise an obvious problem for Spinoza about the indiscernibility of identicals, since ideas would seem to have different properties than their ideata.
5. See G II 97–103 (C I 458–62).
6. Alan Gabbey has noted that *involvere* also means "to imply" in certain other contexts. See Gabbey 2008, 47–48 n10. There is, of course, no reason to insist that the term have the same meaning in all contexts in Spinoza's writings.
7. On this see especially the example of the Spanish poet in E4p39s, where Spinoza suggests that a traumatic event, such as a grave illness, can change the *ratio motus et quietis* of a given human body, thus changing its identity from one person to another.

8. See, e.g., *Korte Verhandeling*, part II, pref., G I 52 (C I 96); ch. 20, G I 95–96 (C I 135–36), G I 99–100 (C I 137); App. II, G I 120–21 (C I 155–56).
9. Many commentators read the *ratio motus et quietis* in question as a kind of numerical proportion, following the way Spinoza seems to conceive of it in the *Korte Verhandeling*. See, e.g., Gueroult 1974, 165–68, 171–75, 179–81, 563–69. For alternative views, which read "*ratio motus et quietis*" in the broader way suggested here, see Garber 1994, 54ff; Garrett 1994, 86–87.
10. Hobbes argues that the phantasm is generated when the motion coming from the outside and propagated through the brain reaches an inner part with a contrary motion. This is supposed to give rise to the feeling of exteriority that we attach to the phantasm. See Hobbes 1656, ch. 25.2, 291–92. There is nothing in Spinoza's text that corresponds to this account in Hobbes. (Though the *De corpore* was published in Latin in 1655, my references are to the English translation, published in 1656.)
11. Here I depart from Curley's translation by translating "*directè explicat*" as "directly displays" rather than "directly explains." In general, Curley translates "*explicare*" as "explain," which is usually correct, though not always, for reasons discussed below.
12. A rather different account of perception is suggested in E2d3. There Spinoza gives a definition of "idea": "By idea I understand a concept of the Mind that the Mind forms because it is a thinking thing." This is followed by a short explanation: "I say concept rather than perception because the word perception seems to indicate that the mind is acted on by the object. But concept seems to express an action of the mind." I find it difficult to reconcile what he says here with the account of perception in E2p11c.
13. While the problem itself has puzzled readers for a long time, the colorful name is due to Michael Della Rocca. See Della Rocca 1996, 9; 2008, 108ff.
14. This seems not to be true for God, though. In E2p20, Spinoza seems to identify God having an idea, that is, God perceiving something, with God having knowledge (*cognitio*) of it.
15. When I use the term "conscious awareness," I mean it in a relatively naïve sense. This obviously raises general questions about consciousness in Spinoza, an issue about which there is a significant literature. But this is not the place to discuss the question in full detail. Two classic positions in the recent literature are found in Garrett 2008; Nadler 2008. For a nice discussion of the state of the problem in the commentary literature, see LeBuffe 2010. A recent discussion that also goes through the current literature is Eugene Marshall 2013, chapter 4. I tend to agree, though, with Miller 2007 that the prospects for a Spinozistic theory of consciousness are not good.
16. On Telesio, see Giglioni 2010; on Bacon see *Sylva Sylvarum*, the preface to century IX, Bacon 1627, 211–12; on Leibniz, see "Monadology," *passim*.
17. Hobbes 1656, ch. 25.2.
18. Ibid.
19. Hobbes 1656, ch. 25.5.
20. Ibid.
21. Ibid.
22. See Garber 2016, 122–27.
23. Matters are somewhat more complicated than this simple summary might suggest. For one, the demonstration of E2P19 is complicated and not a little puzzling. In E2p19d, Spinoza begins by noting that by postulate 4 following E2p13s, "the human body, to be preserved requires a great many other bodies, by which it is, as it were, continually regenerated." From this, Spinoza infers that God's idea of my body, which includes (by E1ax4?) the ideas

of those other bodies, is different from my idea of my body, which doesn't include the ideas of those other bodies. But, Spinoza claims, the ideas of the affections of my body are in God just as they are in my mind. First of all, I don't understand how this second claim can be true: why wouldn't the ideas of the causes of the affections on my body be in God, though not in my mind? But even if this reasoning were true within Spinoza's metaphysics, I don't see how it would establish the proposition it is supposed to prove. In addition, I find rather puzzling how the concluding sentence of E2p19d paraphrases the proposition Spinoza claims to have proved. At the end of the demonstration Spinoza writes: "Therefore, to that extent only [*eatenus tantùm*], the human Mind perceives the human Body itself." This looks rather distant from the statement of the proposition. What I find curious is the use of the verb "*percipere*" here, rather than "*cognoscere*" or "*scire*" as in the statement of E2p19 itself. Given that by E2p12, my mind perceives everything that goes on in my body, I should think that this conclusion is carelessly stated. More exactly, it seems to me that Spinoza should have written: "It is only insofar as [*eatenus tantùm*] the human mind perceives the ideas of affections by which the Body is affected that it knows [*cognoscit*] the human body itself."

24. Curley translates "*sub specie aeternitatis*" as "under a species of eternity." But the "*species*" in question here is not what we call species in English, but "gaze" or "view." I think that the phrase clearly means something like "from the point of view of eternity." That understood, I prefer to leave it in Latin.
25. I would like to thank the participants in the conference Causation and Cognition in Early Modern Philosophy for their very helpful discussion following the oral presentation of an earlier version of this chapter. But I would like to give special thanks to Sebastian Bender and Dominik Perler for their comments on the written version.

Literature

Bacon, Francis. *Sylva Sylvarum, or a Natural History in Ten Centuries*. London: W. Lee, 1627.

Della Rocca, Michael. *Representation and the Mind-Body Problem in Spinoza*. New York: Oxford University Press, 1996.

———. *Spinoza*. London and New York: Routledge, 2008.

Descartes, René. *The Philosophical Writings of Descartes*. Edited and translated by John Cottingham, Robert Stoothoff, Dugald Murdoch, and Anthony Kenny, 3 vols. Cambridge: Cambridge University Press, 1984–91.

———. *Oeuvres de Descartes*. Edited by Ch. Adam and P. Tannery, 11 vols., Nouvelle éd. Paris: Vrin, 1996.

Gabbey, Alan. "Spinoza, Infinite Modes and the Infinitive Mood." *Studia Spinozana* 16 (2008): 41–66.

Garber, Daniel. "Descartes and Spinoza on Persistence and Conatus." *Studia Spinozana* 10 (1994): 43–67.

———. "Natural Philosophy in Seventeenth Century Context." In *The Oxford Handbook of Hobbes*, edited by A. P. Martinich and Kinch Hoekstra, 106–33. Oxford: Oxford University Press, 2016.

Garrett, Don. "Spinoza's Theory of Metaphysical Individuation." In *Individuation and Identity in Early Modern Philosophy*, edited by Kenneth F. Barber and Jorge J. E. Gracia, 73–102. Albany, NY: State University of New York Press, 1994.

———. "Representation and Consciousness in Spinoza's Naturalistic Theory of the Imagination." In *Interpreting Spinoza*, edited by Charlie Huenemann, 4–25. Cambridge: Cambridge University Press, 2008.

———. "The Indiscernibility of Identicals and the Transitivity of Identity in Spinoza's Logic of the Attributes." In *Spinoza's Ethics: A Critical Guide*, edited by Yitzhak Melamed, 12–42. Cambridge: Cambridge University Press, 2017.

Giglioni, Guido. "First of the Moderns or Last of the Ancients? Bernardino Telesio on Nature and Sentience." *Bruniana & Campanelliana* 16 (2010): 69–87.

Gueroult, Martial. *Spinoza II: L'Âme (Ethique, II)*. Hildesheim and New York: Olms, 1974.

Hobbes, Thomas. *Elements of Philosophy, the First Section, Concerning Body*. London: Andrew Crocke, 1656.

LeBuffe, Michael. "Theories About Consciousness in Spinoza's Ethics." *Philosophical Review* 119 (2010): 531–63.

Marshall, Colin R. "The Mind and the Body as 'One and the Same Thing' in Spinoza." *British Journal for the History of Philosophy* 17 (2009): 897–919.

———. *The Spiritual Automaton: Spinoza's Science of the Mind*. Oxford: Oxford University Press, 2013.

Miller, Jon. "The Status of Consciousness in Spinoza's Concept of Mind." In *Consciousness: From Perception to Reflection in the History of Philosophy*, edited by S. Heinämaa, V. Lähteenmäki, and P. Remes, 203–20. Dordrecht: Springer, 2007.

Morrison, John. "Two Puzzles About Thought and Identity in Spinoza." In *Spinoza's Ethics: A Critical Guide*, edited by Yitzhak Melamed, 56–81. Cambridge: Cambridge University Press, 2017.

Nadler, Steven. "Spinoza and Consciousness." *Mind* 117 (2008): 575–601.

Spinoza, Benedictus de. *Opera*. Edited by Carl Gebhardt, 4 vols. Heidelberg: C. Winter, 1925. [Abbreviated "G" followed by volume number and page number.]

———. *The Collected Works of Spinoza*. Edited and translated by Edwin Curley, 2 vols. Princeton: Princeton University Press, 1985–2016. [Abbreviated "C" followed by volume number and page number.]

10 The Many Faces of Spinoza's Causal Axiom

Martin Lin

1. Introduction

"Cognition of the effect depends on and implies cognition of its cause," announces Spinoza in 1a4 of his *Ethics*.[1] This axiom, known as "Spinoza's causal axiom," is one of the most important in the *Ethics*. It plays a central role in Spinoza's arguments for some of his most significant doctrines, including (1) that things with nothing in common cannot causally interact; (2) that we have sense perception of the external causes of our bodily states; (3) that we have adequate knowledge of God's eternal and infinite essence; and (4) that the order and connection of ideas is the same as the order and connection of things. It would thus appear that a single axiom bears a tremendous amount of weight in Spinoza's metaphysical system.

In what follows, I will explore how Spinoza uses the axiom to argue for the four doctrines mentioned above, and I will argue that it cannot be given a consistent interpretation that allows it to play all the roles that he assigns to it. In particular, whereas there is a single interpretation that makes sense of (1)–(3), there is no way to make the causal axiom consistent with both those three doctrines and the role Spinoza assigns it in securing (4). I will argue, however, that this does not present an insuperable problem for Spinoza, because he has a better argument for the parallelism that relies not on the causal axiom but rather on mode identity. I conclude by considering the underlying philosophical motivations for the causal axiom and argue that it is an expression of a coherent and attractive view of the relationship between causation and causal explanation.

2. No Interaction

Spinoza famously denies that things that do not share an attribute can causally interact. This is a significant doctrine because it helps him establish that it pertains to the nature of a substance to exist (1p7 via 1p6), which is, in turn, crucial to all four of his arguments for the existence of

God (1p11). His argument for it also contains the first application of the causal axiom in the *Ethics*. He writes:

> *1p3:* If things have nothing in common with one another, one of them cannot be the cause of the other.
> *Dem.:* If they have nothing in common with one another, then (by 1a5) they cannot be understood through one another, and so (by 1a4) one cannot be the cause of the other, q.e.d.

The argument (No Interaction) can be paraphrased as follows:

1. If two things, *x* and *y*, have nothing in common, then *x* and *y* are not understood through one another. (1a5)
2. If *x* and *y* are not understood through one another, then *x* and *y* do not stand to each other as cause to effect. (1a4)
3. Therefore, if *x* and *y* have nothing in common, then *x* and *y* do not stand to each other as cause and effect.

The second premise of No Interaction is justified by appeal to the causal axiom, 1a4, which means that we must understand it in a way that is not immediately suggested by its initial formulation. In particular, we must read it as entailing:

- If one thing causes another, then these things can be understood through one another.

This raises the question of what kind of "understanding" is at issue in the claim that if one thing causes another, then they can be understood through one another. Moreover, in connection with the first premise of No Interaction, it is natural to wonder why Spinoza believes that it is necessary that things that are understood through one another, in the relevant sense, have something in common.

The answers to these questions become clearer when we situate 1p3 into the broader philosophical context of Spinoza's *Ethics*. Spinoza takes up the issue of interaction again in 2p5 and 2p6. And once again, he appeals to his causal axiom to make his case. There he appears to say that modes of different attributes cannot causally interact, because the concepts of modes of a given attribute "imply the concept of their own attribute, but not of another one" (2p6). That is, if one thing causes another, then their concepts are inferentially connected. Concepts are inferentially connected just in case they belong to the same attribute. Thus, things cause one another only if they can be conceived under the same attribute. But why should there be a conceptual condition on causation?

The answer to this question can be found in Spinoza's discussion of mind–body identity in 2p7. Just after telling us that God cannot cause modes except insofar as he is considered under the attributes to which

they belong, he says that the mind (i.e., the idea of the human body) and the body are one and the same thing conceived of in two different ways (2p7s). This creates the appearance of paradox because if God, insofar as he is thinking, causes some idea and every idea is identical to some body, then God, insofar as he is thinking, causes some body. Spinoza is well aware that his words have created the appearance of paradox and immediately addresses it. He says that he denied interaction for "no other reason" than that a mode can be "perceived" only through another mode of the same attribute. Consequently, we must "explain" the causal order of nature through a single attribute at a time.[2] In other words, causal explanations must be framed in terms of concepts that belong to a single attribute because we can only perceive the connections between things when we think about them using concepts that are inferentially connected to each other. This is a point about causal explanation and it does not require Spinoza to deny that minds and bodies can causally interact as they manifestly must, given Spinoza's commitment to mind-body identity. Rather he is denying that we can frame explanations of those interactions in terms of concepts belonging to more than one attribute. The barrier between the attributes is explanatory and not causal.

This interpretation is controversial, but, unfortunately, I cannot undertake a full defense of it here.[3] In lieu of such a defense, I will note only that my interpretation has certain advantages over its main rivals. Many commentators have attempted to deal with the seeming contradiction between Spinoza's claims that bodies and minds don't causally interact and that they are "one and the same thing" by ascribing some exotic doctrine to him, such as that the indiscernibility of identicals is false[4]; that causation is an "intensional relation," the holding of which depends on how things are conceived[5]; or radical ontological pluralism.[6] My interpretation, in contrast, does not impute any such exotic doctrine to Spinoza. The claims that causation implies causal explanation, and that causal explanations must be framed in terms of concepts that bear inferential connections to each other, although not entirely uncontroversial, are certainly less controversial than the aforementioned alternatives and, to this extent, my interpretation is to be preferred. Others have attempted to address the problem by claiming that, when Spinoza says that the mind and the body are "one and the same thing," he does not mean that minds and bodies are numerically identical; rather he means that they are qualitatively similar and are parts of a single whole (the mind–body composite that constitutes the human being).[7] But as Don Garrett has convincingly shown, there is no textual evidence that Spinoza ever uses "one and the same thing" to express anything but numerical identity.[8] My interpretation has the advantage of allowing us to interpret "one and the same thing" in the most natural way as expressing numerical identity. Against my interpretation, it might be objected that it reads *causa* in Spinoza as ambiguous between expressing a metaphysical relation—causation as

such—and an epistemic relation—causal explanation. This is true, but I do not think that it represents a significant cost. In philosophical neo-Latin, *causa* is no less ambiguous between causation and explanation[9] than "cause" is in English,[10] and thus it is in no way surprising that Spinoza's use of the term displays such ambiguity.

We now see why Spinoza thinks that the causal axiom entails that if *x* causes *y*, then *x* and *y* can be understood through one another, and that if *x* and *y* can be understood through one another, then they have something in common. He believes the former claim because he believes causation implies explanation and he believes the latter claim because he believes that explanation requires conceptual connectedness, presumably because he thinks that causation is intelligible.[11] Thus, two things that do not share an attribute cannot cause one another because there is no way of conceiving of them such that their concepts are inferentially connected.

It should be stressed that the claim that causation implies explanation is compatible with modes of different attributes standing in causal relations to one another. It is true that if we conceive of two modes under different attributes, then they cannot causally explain one another. However, Spinoza's causal axiom only requires that if *x* causes *y*, then there is some way of conceiving *x* and *y* such that *x* causally explains *y*. The modes of one attribute are identical to the modes of every other attribute and thus for any two modes, there is a way of conceiving both under the same attribute, which allows us to appropriately frame causal explanations whenever causal relations obtain.

We can summarize these results as follows. The argument of 1p3 requires us to understand Spinoza's causal axiom as entailing:

- If *x* and *y* stand in causal relations, then *x* and *y* are understood through one another.

And given how Spinoza develops his ban on inter-attribute causal explanation in 2p5, 2p6, and 2p7s, we can further interpret 1a4 as entailing:

- If *c* causes *e*, then there is some way of conceiving *c* and *e* so that *c* causally explains *e*.

Spinoza believes that causation implies understanding because he thinks that if one thing causes another, then the one causally explains the other. Explanation generates understanding, and if one thing causes another, then the latter is understood through the former.

It is natural to think that understanding is a relation to a subject. (This point isn't particularly important for understanding No Interaction, but it will become important when we consider his account of sense perception, adequate cognition of the essence of God, and the parallelism, so it will be useful to start addressing this issue now.) Here is one way that the

claim about understanding entailed by the causal axiom can be reformulated so as to make its relativity to a subject explicit:

- If *x* and *y* stand in causal relations, then there is a subject *S* such that *S* understands *x* and *y* through one another.

But this formulation is unsatisfactory, because in 1a5 Spinoza treats the claim that *x* is understood through *y* as equivalent to the claim that *x* is conceived through *y*. However, that *x* is conceived through *y* does not entail that anyone has ever conceived of *x*, whereas the above formulation treats "*x* is understood through *y*" as entailing that someone understands *x*. (Spinoza does not establish that all modes are conceived until 2p3, by which time he has already argued that infinitely many modes which are conceived through God exist in 1p16.[12]) We can, however, reformulate the principle as follows so that it doesn't imply that a subject actually understands:

- If *x* and *y* stand in causal relations and there is a subject *S* that understands *x* or *y*, then *S* understands *x* and *y* through one another.

This formulation does not have the unwanted consequence that if *x* is understood through *y*, then there is someone who understands *x*. Rather, it merely states that if someone understands (in the sense of grasping a causal explanation) a cause and its effect, then they must understand them through each other.

3. Sense Perception

Another important use of the causal axiom occurs in 2p16, which forms the basis of Spinoza's account of sense perception (an account I will call "Sense Perception" hereafter). I reconstruct it as follows:

1. The causes of a passive state of the human body are the natures of both the human body and certain external bodies. (2a1)
2. If *c* causes *e* and *S* has an idea of *e*, then *S* has an idea of the nature of *c* that is implied by *S*'s idea of *e*. (1a4)
3. Therefore, if *S* has an idea of a passive state of *S*'s body, then *S* has an idea of the natures of both *S*'s body and certain external bodies that is implied by *S*'s idea of the passive state.

Spinoza argues that if we have an idea of a state with internal and external causes, then that idea implies an idea about those causes. When the external world impinges upon us (e.g., by directing light rays through our eyes to our retinas, which subsequently puts our visual system in a certain state), we have an idea of that state. Because that state has causes, by the

causal axiom, we have ideas of those causes, which include the external causes. Thus, we have ideas of the external world insofar as it causes us to be in that state.[13]

In order to understand Spinoza's argument, it will first be necessary to understand some elements of Spinoza's philosophy of mind and his account of intentionality. According to Spinoza, every idea is identical to some body. The human mind is a complex idea that is identical to a complex body, and the parts of the human mind are identical to the parts of the human body. Not only are our ideas identical to parts of our body, but they represent them. This intentionality toward the body is both primitive and direct. It is primitive because it is not analyzable in terms of any other relation. It is direct because it does not obtain in virtue of the representation of anything else. Moreover, for Spinoza, the only thing that the mind can represent in this primitive and direct way is the body to which it is identical.

In addition to this direct and primitive intentionality, Spinoza also holds that there is derived and indirect intentionality. For example, we can represent things other than our own body in virtue of representing our own body when the states of our body have an external cause. Such representation is indirect because it occurs in virtue of the representation of something else (viz., our own body), and it is derived because it occurs in virtue of nonrepresentation relations (viz., causation).[14]

In Sense Perception, Spinoza is addressing a special case of indirect derived intentionality: the kind that occurs when the external world causes a state of our body. The causal axiom entails that ideas about effects imply ideas about their causes. Ideas of the states of our body that have external causes imply information about those causes, and thus we automatically represent those external causes by means of representing our body.

There are two things worth noting that will become relevant when we compare this use of the causal axiom with the role the axiom is asked to play in the demonstration of the parallelism doctrine in 2p7d. First, the idea of *e* and the idea of *c* possessed by *S* need not be different ideas. Indeed, it is very natural to read the demonstration as saying that there is a single idea that represents both the effect (the passive state of the human body) and its causes. It represents them both because the idea of the passive state implies truths about the internal and external causes.[15]

Second, the idea of the causes (the natures of both the human body and certain external bodies) must be possessed by the same subject that possesses the idea of the passive state. This must be so if 2p16 is to provide an account of sense perception. After all, if the idea of its causes implied by my idea of my passive state was in your mind instead of mine, I could hardly be said to enjoy perception of the external world in virtue of your idea.

At this point, a natural question arises about how a single axiom could support both No Interaction and Sense Perception. After all, causation

between things that don't share an attribute and perception of the external world appear, on the face of it, to be completely different topics. Let us begin by comparing the premises derived from the causal axiom at work in both arguments. The premise in No Interaction is:

- If *x* and *y* stand in causal relations and there is a subject *S* that understands *x* or *y*, then *S* understands *x* and *y* through one another.

And the premise in Sense Perception is:

- If *c* causes *e* and there is a subject *S* has an idea of *e*, then *S* has an idea of the nature of *c* that is implied by *S*'s idea of *e*.

It is clear that the two premises are not logically equivalent to each other. However, if we help ourselves to equivalencies that Spinoza states elsewhere, then it is possible to see the No Interaction premises as entailed by the Sense Perception premise. The antecedent of the No Interaction premise is "*x* and *y* stand in causal relations," whereas the antecedent of the premise in Sense Perception is "*c* causes *e*." The antecedent of the Sense Perception premise is stronger in that it specifies the direction of the causal relation whereas No Interaction is indifferent to the direction of causality. Moreover, Sense Perception requires a consequent that specifies the conceptual relation: the idea of the cause must be implied by the idea of the effect. This is clearly logically stronger than the consequent of the premise of No Interaction, which merely requires that some conceptual connection obtains. This is even clearer when we consider that 1a5 and 2d3 license us to paraphrase the consequent of the No Interaction premise as *either* "*S* has an idea of *x* that implies an idea of *y* or *S* has an idea of *y* implies an idea of *x*," which is clearly entailed by the Sense Perception consequent: "*S* has an idea of the nature of *x* that is implied by *S*'s idea of *e*." Thus, the Sense Perception premise is logically stronger than the No Interaction premise and we can derive the latter from the former.

But is the underlying motivation the same in each case? I believe that the answer is yes. Spinoza's denial of interaction is motivated by the thought that causation implies causal explanation and causal explanation must be framed in terms of concepts that bear inferential connections to one another. Similarly, the account of sense perception is motivated by the thought that representations of effects allow us to infer information about their causes because causes explain their effects. The picture of explanation assumed by No Interaction is entailed by that of Sense Perception. Thus, both arguments can be seen as rooted in the notion that causal explanation allows us to infer information about the cause from an idea of the effect. What is more, the idea that explanation allows us to infer information about the cause from the effect is a natural one. For example, the distribution of characteristics in the result of crossbreeding

pea plants allowed Mendel to infer the existence of genes because the existence of genes explains the distribution. Spinoza thinks that such inferential connections require that explanations are framed in terms of concepts that belong to a single attribute because only such concepts are inferentially connected. Thus, No Interaction and Sense Perception express interlocking perspectives on the relationship between causation, causal explanation, and implication.

4. Knowledge of God's Essence

One of the more striking theses advanced by Spinoza in the *Ethics* is that every idea implies adequate knowledge of God's eternal and infinite essence. (I will call this thesis "Knowledge of God" hereafter.) That is, not only is it possible to know God, but every human mind, and indeed every mind whatsoever, automatically possesses this knowledge. Here, too, the causal axiom is in play. The first stage of the argument comes at 2p45 and can be summarized thus:

1. Every singular thing is causally explained by God insofar as he is considered under the attribute of that thing. (1p15 and 2p6)
2. An attribute expresses the eternal and infinite essence of God. (1d6)
3. If *c* causes *e*, then the idea of *e* implies an idea of *c*. (1a4)
4. Therefore, the idea of every singular thing implies the eternal and infinite essence of God.

Spinoza next argues (in 2p46d) that such ideas of God's essence are all adequate. Every idea whatsoever implies an idea of God's essence, and, thus, such ideas of God's essence are common to all and "equally in the part as in the whole."[16] What is common to all and equally in the part as in the whole can only be, for Spinoza, conceived of adequately (2p45). Thus, Spinoza concludes, the idea of God implied by every idea is adequate.

On this basis, Spinoza infers (in 2p47d) that the human mind has adequate knowledge of God's eternal and infinite essence. This conclusion sheds light on how Spinoza is using his causal axiom in this context. Recall that the argument for the claim that every idea implies an idea of God's essence has this premise derived from the causal axiom:

- If *c* causes *e*, then the idea of *e* implies an idea of *c*.

The role this premise plays in eventually securing Knowledge of God requires that both the idea of *e* and the idea of *c* implied by it must be in the very same mind. This is because if ideas in the human mind implied ideas of God's essence that were not part of the human mind, then there would be no sense in which the human mind would possess knowledge of God.

Not only must the idea of *c* be in the same mind as the idea of *e*, but there are powerful reasons for supposing that it must be the very same idea. Every idea in the human mind has some part of the human body as its object. Moreover, every idea of the human body implies adequate knowledge of God (2p46). Thus, if the human mind has knowledge of God's essence, then there is an idea that constitutes that knowledge that is identical to some idea of a part of the human body. Therefore, there is at least one idea of a cause (i.e., an idea of God's essence) that is identical to the idea of the effect (i.e., an idea of a part of the body) that implies it. It would be very surprising if there were one part of the human body the idea of which constituted knowledge of God and was implied by every other idea in the human mind. Instead, it would be much more natural to say that every idea implies an idea of God's essence to which it is identical.

5. Parallelism

The last major use of the causal axiom that I would like to discuss is Spinoza's use of the axiom in deriving his famous parallelism doctrine (Parallelism hereafter), which says, "The order and connection of ideas is the same as the order and connection of things" (2p7). From the way Spinoza uses the proposition in subsequent demonstrations, it is clear that he means the causal structure of each attribute is the same.

Because they manifest the same causal structure, there must be the same number of bodies as there are minds. If there were fewer minds than bodies or vice versa, then there would be either unoccupied positions in one of the two structures or leftover minds or bodies that had stood in no causal relations. There can't be unoccupied positions, because that would mean that there were causes without effects or effects without causes. And the existence of leftover bodies or minds would be tantamount to a structural difference insofar as the fact that there are bodies or minds that are not in the structure is a fact about the structure.[17]

Moreover, the way bodies and minds exemplify the same structure is constrained, according to Spinoza, by representation relations: every idea represents the body of which it is the structural analog (2p7c). Recall that Spinoza recognizes two resources of intentionality: the direct primitive intentionality that an idea bears to the body to which it is identical, and the indirect derived intentionality that an idea bears toward objects that are distinct from it. Spinoza calls the idea that directly and primitively represents a body the "mind" of that body. As Spinoza's subsequent discussion makes clear (e.g., in 2p7s), it is direct primitive intentionality that constrains Parallelism. If a thing stands in causal relations, then the idea which is identical to it and represents it directly—that is, its mind—stands in those same relations and not another idea that merely indirectly represents it.

As we saw when considering No Interaction, Spinoza denies mind–body causal explanation on the grounds that genuine explanations must be framed in terms of concepts that bear inferential relations to one another and that only concepts that fall under the same attribute bear such relations. And yet, the mind and the body seem tightly connected. When you kick my shin, I feel pain. When I want a drink, I raise my hand to catch the waiter's attention. If mind–body explanation is impossible, why are these events so reliably correlated? Parallelism is meant to answer this question. They are correlated because the causal order exemplified by the mental is the same as that of the physical.

Spinoza's argument for this conclusion is brief, and he cites only the causal axiom in support of it.

2p7: The order and connection of ideas is the same as the order and connection of things.

Dem.: This is clear from 1a4. For the idea of each thing caused depends on the knowledge of the cause of which it is the effect.

One problem with this demonstration is that the causal axiom does not entail the existence of any ideas. It says only that if there is an idea of an effect, then that idea implies and depends on an idea of the cause. Parallelism, however, requires that if there are bodies, then there are ideas. Many commentators, however, have seen 2p3, which says that there is an idea of everything, as supplying the needed premise.[18] Thus, given 2p3, there is an idea of every body, and it implies and depends on the idea of its cause. The resulting argument could be represented as:

1. If a body *c* causes a body *e* and there is an idea of *e*, then the idea of *e* is caused by the idea of *c*. (1a4)
2. There is an idea of each body. (2p3)
3. Therefore, a body *e* depends on a body *c* just in case the idea of *e* is caused by the idea of *c*.

There are at least two problems with this argument. The first is that the argument secures the left-to-right direction of the biconditional but not the right-to-left. For example, the right-to-left direction would be false if ideas of effects can depend on ideas of causes and yet the realm of thought could manifest a different causal structure than the realm of bodies because the effects of some ideas might depend upon the ideas of the causes of their objects *and* other ideas. Yet, such a scenario is not ruled out by either premise of the argument.[19] This problem is, however, orthogonal to our present concerns, and I will set it aside.

More pressing for us is the interpretation of the phrase "the idea of *c*" in premise (1). For Spinoza's argument for Parallelism to be cogent, the idea of *c* must be the idea which constitutes the mind of *c* (Spinoza is

a panpsychist and believes that every body has a mind[20]) and which is identical to it. But this requires a very different understanding of the causal axiom than that employed in No Interaction, Sense Perception, and Knowledge of God. In No Interaction, the premise derived from 1a4 is that if *c* causes *e*, then *c* causally explains *e*. Causal explanation, for Spinoza, requires that if a subject has an idea of an effect, then that idea implies an idea of its cause. But if the cause is distinct from the subject's body (assuming for simplicity an extended cause), then the idea of the cause implied by the idea of the effect will not be the mind of the effect—that is, the idea that directly represents it and is identical to it. Thus, the causal axiom, insofar as No Interaction is concerned, is neutral as to whether the idea of the cause and the idea of the effect are numerically distinct. But if the idea of the cause and the idea of the effect can be numerically identical, then Spinoza cannot derive the conclusion that ideas and bodies are equinumerous from the causal axiom.

Sense Perception raises a similar problem. For Sense Perception to account for our perception of the *external world*, the idea of the cause implied by the idea of the effect must *not* be the idea that is identical to the external cause. The idea of the external cause must be external to our mind and thus cannot be the idea in virtue of which we have sense perception. For example, I am currently looking out my window at a tree. Light rays bounce off the tree, irradiate my retinas, and put my visual system into a certain state. My mind is the idea of my body and, as such, contains an idea of my visual system. The idea of the tree implied by my idea of my visual system is not, however, the idea of the tree that directly represents it and is identical to the tree. Just as the tree is not part of my body, the idea that directly represents the tree is not part of my mind. Thus, Sense Perception demands that the causal axiom is neutral as to whether the idea of the cause and the idea of the effect are numerically distinct.

If the causal axiom by itself cannot deliver numerical distinctness between the idea of the cause and the idea of the effect, does Spinoza have other commitments that could force their distinctness in the case of Parallelism? The identity of the idea of the cause and the idea of the effect is made possible in Sense Perception by the fact that ideas, for Spinoza, can have multiple contents. In Sense Perception, the mind has ideas with multiple contents in virtue of representing states of the body that contain information about the external world. Thus, the idea of the effect and the idea of the cause are one and the same. However, if God's idea of the cause and his idea of the effect could be one and the same idea, as they are in the case of human sense perception, then Parallelism would not follow. For example, it would be enough to satisfy the causal axiom if God had an idea of the state of our visual system and did not have an independent idea of the external factors that explain that state. Thus, there would be fewer ideas than bodies, contrary to 2p7.

We might try to rule this out by appealing to the mind-relativity of content and showing that although the idea of a passive state of our body represents its external causes relative to our mind, those same ideas do not represent those external causes relative to God's mind. This line of defense would start with the observation that, for Spinoza, insofar as an idea constitutes the human mind or part of the human mind, it can have two contents.[21] The first is the content it has in virtue of the primitive intentionality directed at the object with which it is identical—an intentionality that every idea exhibits. As we saw in our discussion of sense perception, there can also be another content, relative to the human mind, that represents the external causes of the states of the body. However, according to Spinoza, insofar as an idea represents the nature of external bodies in addition to the nature of the body with which it is identical, an idea is inadequate (2p25). No idea, however, is inadequate insofar as it is in God's mind. Thus, ideas have one set of contents relative to the human mind and a different set of contents relative to God's mind.

In the case of sense perception, the idea of the cause cannot be the idea that represents the cause directly and is identical to it, because that would be an idea of an *external* cause. Thus, it must be an idea in the human mind that is identical to the idea of some part of the human body and that directly represents the human body and indirectly represents the external cause. This idea is inadequate because, for Spinoza, an idea is inadequate relative to a mind just in case it has causes that are not part of that mind.[22]

One might conclude from this that God cannot have an idea of the external cause of a state of my body by having an idea of my body, because, in the human mind, such ideas are inadequate and all ideas insofar as they are part of God's mind are adequate. But remember that an idea is inadequate relative to a mind just in case its causes are not part of that mind. If God had an idea of, for example, the tree that I am looking at by having an idea of my visual system, then that idea would not be inadequate, because the external cause of that idea would be part of God's mind. Thus, while the idea of the tree would be adequate in God's mind and inadequate in mine, both ideas could be indirect.[23] We cannot, therefore, rule out the possibility that ideas and bodies are not equinumerous on the basis of the mind-relativity of content.

Similar considerations bear on Knowledge of God. As we have seen, every idea in the human mind indirectly represents the essence of God. Moreover, the ideas that represent this essence constitute adequate knowledge of that essence. As we have seen, the most natural interpretation of this doctrine is that every idea in the human mind is identical to an adequate idea of God's essence. Thus, here, too, the causal axiom must be neutral on whether the idea of the cause implied by the idea of the effect and the idea of the effect itself are identical. Parallelism, however, requires that they be distinct, because it requires that the number

of bodies and the number of ideas be the same. Thus, Parallelism needs more than the causal axiom can deliver, even in conjunction with the claim that there is an idea of every body.

6. Implication, Dependence, and the Case for Two Axioms

The problem discussed above with respect to Sense Perception and Knowledge of God points to a related conflict between implication and causal dependence in the causal axiom. The causal axiom says that ideas of effects imply and causally depend on ideas of causes. One notion, implication, concerns rational inference, and another, causal dependence, concerns metaphysical structure. The difference between Parallelism and all the other uses so far considered is that it invokes the relation of causal dependence and not implication, while the others all invoke implication and not causal dependence. The causal axiom, however, doesn't say that cognitions of effects imply *or* causally depend on cognitions of causes, but rather says that every cognition of effects bears *both* relations to cognitions of causes. How do things look if we make both relations salient in every context in which the causal axiom plays a role?

Let's start with Sense Perception. We saw that ideas of states of our bodies with external causes afford us sense perception of those causes in virtue of carrying information about them. Thus, the idea of the effect (e.g., the state of our visual system) is the idea of the cause (the external bodies which affect our visual system). How then can the idea of the effect causally depend on the idea of the cause when they are one and the same idea? There are three main options: (1) The idea of the visual system and the idea of the external cause of its state are one and the same idea. This idea causally depends on itself—that is, it's self-caused. (2) The idea of the external cause is the idea of the object of which it is the external cause and is identical to it. (3) The idea of external cause is neither the idea of the visual system nor the idea identical with the external causes of the state of the visual system but a third idea.

Option (1) is clearly out of the question. Modes are conceived through others in which they inhere (1d5). For Spinoza, one thing inheres in another just in case it is not self-caused.[24] Thus, modes are not self-caused. Moreover, option (1) is incompatible with the hypothesis that the idea of the state of the visual system has an external cause. If the idea of the external cause is self-caused and it is identical to the idea of the state of the visual system, then the idea of the state of the visual system is self-caused. But then the idea of the visual system is both self-caused and not self-caused.

Option (2) is ruled out, because, as previously discussed, the idea of the external causes gives us sense perception only if it is part of our minds. But an idea is identical to an external cause only if it is not part of

our minds. Again, on this scenario I would have sense perception of, for example, the tree outside my window because someone else has an idea of the tree, which is clearly an inadequate account of sense perception.

The only remaining option is (3), but there is no plausible candidate for being an idea in our mind that (a) is identical neither to the effect nor to the cause, (b) still represents the external cause, and (c) is such that the idea of the effect depends on it. The effect is a state of the visual system. What other idea in the human body could be the idea of the cause? Perhaps there is a state of the brain not part of the visual system that is an output of the visual system—for example, a state of the prefrontal cortex—that encodes information about the external causes. But if so, it is not the cause of the state of the visual system; rather it is an effect of the visual system. Thus, it fails to satisfy (c); it is not such that the idea of the effect depends on it.

The three options just considered by no means exhaust the logical space. For example, it is logically possible that the idea in the prefrontal cortex and the idea of the state of the visual system mutually cause one another. But this is incompatible with the natural assumption that the kind of causation at issue here is asymmetric. Fire causes smoke, but smoke does not cause fire. There are, no doubt, other logically possible scenarios, but, as far as I can see, none of them are plausible as accounts of sense perception, and so we cannot appeal to them in making the dependence clause of the causal axiom consistent with Sense Perception.

Similar problems arise for knowledge of God's essence in the human mind. The idea which constitutes our knowledge of God must be an idea in the human mind. Spinoza argues that this idea is adequate because it is common to all and equally in the part as in the whole (2p46). This universality entails that every idea in the human mind, and the human mind itself, implies an idea of God's eternal and infinite essence. But every idea in the human mind directly represents a part of the human body, and the human mind itself is an idea that directly represents the human body. For this reason, our idea of God's essence must be identical to some idea of our body. Thus, there is at least one idea in the human mind that both is identical to and implies an idea of God's essence. Indeed, as I argued earlier, the most natural assumption is that every idea in the human mind both is identical to and implies an idea of God's essence. But no idea can both imply and causally depend on an idea of God understood in this way, on pain of self-causation.

These considerations show that the causal dependence clause and the implication clause of the causal axiom are in conflict with each other. Because Spinoza only appeals to implication in No Interaction, Sense Perception, and Knowledge of God, and only appeals to causal dependence in the Parallelism, it would appear that there are not one but two causal axioms that are, in the context of Spinoza's system, incompatible with each other. One axiom says that cognition of an effect implies cognition

of the cause and supports No Interaction, Sense Perception, and Knowledge of God but not Parallelism. Another axiom says that cognition of an effect causally depends on cognition of its cause and supports the Parallelism but conflicts with Sense Perception and Knowledge of God. Spinoza can have, at most, one of these axioms.[25]

Fortunately for Spinoza, there is a simple solution to this problem. The implication version of the axiom is indispensable to No Interaction, Sense Perception, and Knowledge of God, but the causal dependence version is eminently dispensable when it comes to Parallelism because, as we have seen, the dependence version of the causal axiom, even when supplemented with additional Spinozistic doctrines, fails to secure it. Spinoza, however, has an independent argument for Parallelism that is more successful and does not rely on the causal axiom. In the scholium to 2p7, Spinoza writes:

> [W]hatever can be perceived by an infinite intellect as constituting the essence of substance pertains to one substance only, and consequently [. . .] the thinking substance and the extended substance are one and the same substance, which is now comprehended under this attribute, now under that. So also, a mode of extension and the idea of that mode are one and the same thing, but expressed in two ways. [. . .] Therefore, whether we conceive nature under the attribute of Extension, or under the attribute of Thought, or under any other attribute, we shall find one and the same order, or one and the same connection of causes, i.e., that the same things follow one another.

This argument raises many fascinating questions about the nature of the attributes and their relation to the one substance; I cannot, unfortunately, address those questions here.[26] It is clear, however, that Spinoza maintains that every idea is identical to some body and that every body is identical to some idea. He infers from this that the order and connection of ideas is the same as the order and connection of things. This is obviously a valid inference and does not appeal to any version of the causal axiom.[27]

Spinoza cannot have both the implication and the causal dependence versions of the causal axiom. He needs the implication version (for No Interaction, Sense Perception, and Knowledge of God) but does not need the causal dependence version, even for the one doctrine whose argument appeals to it (Parallelism), because he can secure it on an alternative basis (mode identity). It is clear, then, how this tension should be resolved: Spinoza ought to retain the implication version of his causal axiom and relinquish the dependence version.

7. Comparison With Previous Interpretations

Some commentators have thought that Spinoza's causal axiom is restricted in some way. For example, Guéroult and Loeb[28] have argued

that it is restricted to adequate cognition, and Morrison has argued that it is restricted to immanent causation.[29] As Margaret Wilson has persuasively argued, the causal axiom cannot be restricted to adequate cognition, because two of Spinoza's most significant applications of the axiom are found in Sense Perception, which concerns inadequate cognition, and Knowledge of God, which says that all of our ideas, including inadequate ones, imply knowledge of God.[30] My interpretation respects Wilson's insight and is not restricted to adequate cognition.

A more challenging case is Morrison's claim that the axiom is restricted to immanent causation. An immanent cause, for Spinoza, is a cause in which the effect inheres, which contrasts with transitive causes in which the effect does not inhere in the cause. Thus, if a substance causes a mode, the substance is an immanent cause of the mode, and if a mode causes a mode that doesn't inhere in it (e.g., when the external environment causes my visual system to be in a certain state), then the former is the transitive cause of the latter. Such a restriction seems to conflict with Sense Perception, but Morrison offers an ingenious reconstruction of it according to which the axiom requires only that we have cognition of the immanent cause of our states—that is, our own nature. Because he thinks that Spinozistic natures include dispositions such as being disposed to be in a certain state only if our environment contains certain features, we can infer information about our environment from our present state and our own nature.[31] I do not object to this gloss on Sense Perception, but I would argue that it does not show that the axiom is restricted to immanent causation. Rather, if correct, it shows that cognition of transitive causes is acquired indirectly by means of cognition of immanent causes. In other words, Morrison's interpretation does not show that Spinoza's causal axiom is restricted to immanent causes so much as it gives an account of how we acquire cognition of transitive causes.

According to Jonathan Bennett, Spinoza's causal axiom is a "version or a part of causal rationalism," by which he means the doctrine according to which the relation between cause and effect is the same relation that a conclusion bears to premises in a logically valid argument.[32] In contrast, on my interpretation, in No Interaction, Sense Perception, and Knowledge of God, the causal axiom entails that if we have an idea of the effect, we can infer what the cause is on the basis of the explanatory connections that obtain between cause and effect, which is compatible with the relationship between cause and effect being different from the relationship between premises and conclusion. This is because, first of all, explanatory inferences need not be underwritten by logical entailments. For example, if the evidence implicates the criminal, we can infer the identity of the criminal from the evidence although it does not logically entail it.[33] Second, logical entailment need not be explanatory, and we cannot, as a general matter, legitimately infer premises from conclusions. For example, *p&q* entails *p* but we cannot infer *p&q* from *p*.

In another respect, however, my interpretation is similar to Bennett's in that he also claims that there are two distinct versions of the causal axiom. But, on his interpretation, the difference between the two axioms is that one is logical (concerns relations between concepts understood as abstract) and the other psychological (concerns ideas and minds). Wilson complains against Bennett that this begs the question of the difference between logical and psychological entities and relations in Spinoza's philosophy of mind.[34] On my interpretation, however, Wilson's scruples are irrelevant, because no matter how the line between the logical and the psychological is drawn, the conflict between implication and causal dependence is irresolvable.

It is often assumed that the causal axiom says that *x* causes *y* just in case *y* is conceived through *x*. Contrary to this interpretation, Morrison has recently argued that the causal axiom says that *x* causes *y* only if *y* is conceived through *x*, but it does not say that if *y* is conceived through *x*, then *x* causes *y*. He further maintains that not only is the claim that conception implies causation not an important doctrine for Spinoza, but he would probably reject it.[35] None of my reconstructions of Spinoza's arguments make use of the claim that if *y* is conceived through *x*, then *x* causes *y*, and thus my interpretation is, to this extent, consistent with Morrison's. And that none of Spinoza's most significant doctrines presuppose that conception implies causation lends some credence to Morrison's claim that if Spinoza does accept that conception implies causation, it is not an important doctrine for him. Moreover, what I take to be the principle motivation behind Spinoza's causal axiom (that causation implies causal explanations and that such explanations license inferences from thoughts about the effect to thoughts about the cause) does not require that it is impossible to conceive of one thing through another unless the former is caused by the latter.

8. Conclusion: Causation, Explanation, and Implication

The underlying philosophical motivations of Spinoza's causal axiom have been a source of controversy among scholars. One reason for this, on my reading of 1a4, is that Spinoza derives two distinct principles from it. One of these principles, the implication version of the axiom, has an important role in Spinoza's system, and the other, the causal dependence version, I have argued, cannot even play the limited role that it is called upon to do.

Not only does the causal dependence version fail to play its role, it is difficult to find any compelling philosophical motivation for it. Apart from Spinoza's mind–body identity thesis, there is no independent reason to think that thoughts about effects are caused by thoughts about their causes. This is the sort of tendentious metaphysical claim for which we would like an argument and not something that even a sympathetic reader is likely to grant as an axiom.

The implication version, however, has a clear philosophical motivation: Spinoza thinks that there is no causation without causal explanation. But in order for these explanations to be perspicuous, they must be framed in terms of concepts that bear inferential relations. Thus, causation implies explanation, which, in turn, implies implication. In other words, if *c* causes *e*, then the idea of *e* implies the idea of *c*. The concepts that pertain to one attribute bear no inferential connections to concepts that pertain to another; thus, two substances that don't share an attribute cannot causally interact, because the lack of inferential connections between the concepts that apply to them precludes explanations regarding their causal interactions. Similarly, if a state of our body has an external cause, then there is an explanatory relation between them that allows us to infer its cause from the idea of the state. And because we are modes of God, there must be explanatory connections between our minds and God that allow us to infer the nature of God from the nature and condition of our minds.

Spinoza's causal axiom is thus a complex principle that is, in the context of his system, at war with itself. It entails one principle about implication and another about causal dependence. As we have seen, the principle concerning implication is an important doctrine that is essential to No Interaction, Sense Perception, and Knowledge of God and has a clear and appealing philosophical motivation. In contrast, the principle concerning causal dependence fails in the one job it is asked to do—secure Parallelism—and lacks any compelling motivation. What is more, given his other commitments, the causal dependence principle and the implication principle cannot both be true. We must conclude that the clause about causal dependence in the causal axiom was a misstep and Spinoza would do well by rejecting it. An axiom that merely said that cognition of the cause is implied by cognition of the effect would provide Spinoza everything he needs while protecting him from the disastrous consequences of his original formulation.

Abbreviations

References to Spinoza are from Gebhardt (ed.), *Opera*. Translations into English are taken from Curley's translations in Spinoza, *The Collected Works*, 2 vols., with occasional modifications.

Passages of the *Ethics* are cited in the following way:

app	appendix
a	axiom
c	corollary
d	demonstration or definition, depending on context
p	proposition
s	scholium

Notes

1. In his standard translation, Edwin Curley renders *involvit* as *involves*, which is a perfectly acceptable translation of the word. But, as Alan Gabbey has shown, *involvere* was a technical term in philosophical neo-Latin that was synonymous with *implicare*, and thus *implies* is also an acceptable translation (see Gabbey 2008). For reasons that will become clear, I think this more accurately captures Spinoza's intention.
2. 2p7s.
3. For a fuller treatment of this issue, see Lin forthcoming a, chap. 4.
4. See Morrison 2017.
5. See Della Rocca 1996.
6. See Garrett 2017.
7. See Marshall 2009.
8. See Garrett 2017, 22–24.
9. See Carraud 2002.
10. See Davidson 1967; Strawson 1985, 115–17.
11. I discuss these issues in more detail in Lin, forthcoming a.
12. See Morrison 2013, 2.
13. For more discussion of this argument, see Lin 2004.
14. See Bennett 1984, 156.
15. See Ibid.; Della Rocca 1996, 48.
16. 2p46d.
17. Morrison offers an interesting series of arguments for the conclusion that, for Spinoza, the sameness of the causal structure of things implies that if things are ordered in some way, then their corresponding ideas are ordered in the same way, but it does not imply that if ideas are ordered in some way, then things are ordered in the same way. In particular, Morrison suggests that 2p7 leaves open the possibility that there are more ideas than things, as well as that there are more connections between ideas and things. (See Morrison 2013, 12–14.) With respect to the possibility that there are more ideas than things—the more important claim for my argument here—I believe that this is ruled out by 2p8c, in which Spinoza denies the possibility of the nonexistence of ideas that represent certain things on the basis of the nonexistence of those things by appeal to 2p7. For Morrison's position to be correct, ideas that didn't represent anything would have to be compatible with 2p7, which I take to be un-Spinozistic. This is not to say, however, that I take representation to be sufficient for mentality (see Lin 2017).
18. Bennett 1984, 130; Della Rocca 1996, 22–23.
19. Della Rocca 1996, 23.
20. See Lin forthcoming b.
21. Here I am relying on Della Rocca 1996, chap. 3.
22. 2p24d.
23. Della Rocca claims that God does not have ideas that represent indirectly, but his arguments presuppose the parallelism and thus would beg the question under discussion. See Della Rocca 1996, 44–46.
24. 1d3, 1d5, 1a1, 1a4, and 1p4d.
25. Although she doesn't develop the observation, Margret Wilson is perhaps the first to suspect that tension between the implication clause and the dependence clause might prevent a unified interpretation of 1a4. See Wilson 1999, 160.
26. See Lin forthcoming a, chap. 4.
27. Yitzhak Melamed argues that there are two parallelism doctrines: one presented in 2p7 that concerns things and ideas and one in 2p7s that concerns

modes of different attributes but not modes of the same attribute. If this were so, then 2p7s cannot be used to rescue the first parallelism. But Melamed's interpretation is not correct, because Spinoza applies 2p7s to modes of the same attribute in 2p21s. See Melamed 2013, chap. 5.

28. Guéroult 1968, vol. I, 96–97; Loeb 1981, 160.
29. See Morrison 2015.
30. Wilson 1999, 158.
31. Morrison 2015, 57–62.
32. Bennett 1984, 30, 127.
33. See Garrett 2017, 195.
34. Wilson 1999, 154.
35. Morrison 2013, 2.

Literature

Bennett, Jonathan. *A Study of Spinoza's Ethics*. Indianapolis: Hackett, 1984.

Carraud, Vincent. *Causa Sive Ratio: La Raison de La Cause de Suarez à Leibniz*. Paris: Presses Universitaires de France, 2002.

Davidson, Donald. "Causal Relations." *Journal of Philosophy* 64, no. 21 (1967): 691–703.

Della Rocca, Michael. *Representation and the Mind-Body Problem in Spinoza*. New York: Oxford University Press, 1996.

Gabbey, Alan. "Spinoza, Infinite Modes and the Infinitive Mood." *Studia Spinozana: An International and Interdisciplinary Series* 16 (2008): 41–66.

Garrett, Don. "The Indiscernibility of Identicals and the Transitivity of Identity in Spinoza's Logic of the Attributes." In *Spinoza's 'Ethics': A Critical Guide*, edited by Yitzhak Y. Melamed. Cambridge Critical Guides, 12–42. Cambridge: Cambridge University Press, 2017.

Guéroult, Martial. *Spinoza*, 2 vols. Paris: Aubier-Montaigne, 1968.

Lin, Martin. "Descartes and Spinoza on Judgment." In *Il Seicento E Descartes: Dibattiti Cartesiani*, edited by Antonella Del Prete, 269–91. Firenze: Le Monnier, 2004.

———. "Spinoza and the Mark of the Mental." In *Spinoza's Ethics. A Critical Guide*, edited by Yitzhak Melamed, 82–101. Cambridge: Cambridge University Press, 2017.

———. *Being and Reason: An Interpretation of Spinoza's Metaphysics*. Oxford: Oxford University Press, forthcoming a.

———. "Spinoza's Panpsychism." In *The Routledge Handbook of Panpsychism*, edited by William Seager. New York: Routledge, forthcoming b.

Loeb, Louis E. *From Descartes to Hume: Continental Metaphysics and the Development of Modern Philosophy*. Ithaca, NY: Cornell University Press, 1981.

Marshall, Colin R. "The Mind and the Body as 'One and the Same Thing' in Spinoza." *British Journal for the History of Philosophy* 17, no. 5 (2009): 897–919.

Melamed, Yitzhak. *Spinoza's Metaphysics: Substance and Thought*. Oxford: Oxford University Press, 2013.

Morrison, John. "The Relation Between Conception and Causation in Spinoza's Metaphysics." *Philosophers' Imprint* 13 (2013): 1–17.

———. "Restricting Spinoza's Causal Axiom." *Philosophical Quarterly* 65, no. 258 (2015): 40–63.

———. "Two Puzzles About Thought and Identity in Spinoza." In *Spinoza's Ethics: A Critical Guide*, edited by Yitzhak Melamed. Cambridge: Cambridge Univesity Press, 2017.

Strawson, Peter F. "Causation and Explanation." In *Essays on Davidson: Actions and Events*, edited by Bruce Vermazen and Merrill B. Hintikka, 115–35: Oxford University Press, 1985.

Wilson, Margaret Dauler. "Spinoza's Causal Axiom." In *Ideas and Mechanism: Essays on Early Modern Philosophy*, 141–65. Princeton: Princeton University Press, 1999.

11 Locke on Causation and Cognition

Jennifer Marušić

1. Introduction

Locke's *silence* on so many of the questions and issues central to early modern theorizing about the role that causation plays in cognition is striking. If we consider several central questions about causation and cognition (some of which are mentioned in the introduction to this volume), we'll find that Locke sidesteps them. Thus, if we ask what the entities are that Locke thinks play a causal role in explaining cognition, we can with considerable confidence report that Locke thinks that ideas have an important role to play. But if we press farther and ask whether ideas are mental acts, objects, sensible species, or something else, we find that he has little to say. Thus, Locke famously defines "idea" as "that Term, which, I think, serves best to stand for whatsoever is the Object of the Understanding when a Man thinks" and continues, "I have used it to express whatever is meant by *Phantasm*, *Notion*, *Species*, or whatever it is, which the Mind can be employ'd about in thinking" (E 1.1.8 47).[1] Of course, philosophers, as Locke is well aware, use these terms to mean different things, and offered competing theories about what it is that the mind is employed about in thought. Locke seems to define "idea" in a way that simply ignores these differences and disputes.[2]

Similarly, if we ask whether Locke's account of cognition involves only efficient causation or also appeals to some other type of causation, we might, with some hesitation, suggest that Locke thinks it only involves efficient causation, since there seems to be no evidence that some other type of causation is involved in explaining cognition. Locke, however, does not address the question directly at all. If we try to understand how the causal processes that result in cognition differ from non-cognitive causal processes, like the causal process of digestion, we also find that Locke has nothing explicit to say. We might correctly point out that cognitive processes are distinguished because they involve ideas, but given the way Locke defines ideas, as simply whatever it is that the mind is employed about in thought, this hardly serves to explain the difference between cognitive and non-cognitive processes.

Thus, it seems that where Locke's views about causation and cognition are concerned, we ought to focus on a prior question: why is Locke so unconcerned with these questions and how can he afford to be?

My aim in this chapter is to try to understand Locke's almost deafening silence on so many of these questions. The chapter is divided into four parts. In the first part, I'll sketch the kind of causal story that I think Locke is unconcerned with, and try to offer an explanation of why he is unconcerned with it. This explanation will lead to a different conception of how Locke develops a causal account of perception, one that (surprisingly) turns out to be *a priori*. The second part of the chapter will attempt to explain how and why Locke argues that our sensation is reliable—indeed, even infallible—in a way that bypasses entirely any sort of physical or physiological story about how our senses work.

Of course, sensation is a kind of cognition, but it isn't the only kind of cognition, and so the third part of the chapter will examine Locke's account of reflection: our cognition of our own mental operations. I'll focus on Locke's account of our knowledge that we are sensing, when we are sensing, which I argue is a kind of reflection, since it is an awareness of our own mental operations. I'll argue that this sort of reflection is, in Locke's view, an awareness of our mental powers; specifically, it is an awareness that ideas of sensation are indifferent to the will. It turns out that Locke's account of reflection requires that we have a kind of awareness of our mind's causal activity and passivity. This will lead to the final part of the chapter, which will investigate Locke's account of the cognition of causation.

2. The Physical Consideration of the Mind

Locke begins the *Essay* by describing both his aims in the work and by claiming that a certain kind of physical or physiological explanation is irrelevant to these aims. This is the second paragraph of the *Essay*:

> This, therefore, being my *Purpose* to enquire into the Original, Certainty, and Extent of humane Knowledge; together, with the Grounds and Degrees of Belief, Opinion, and Assent; I shall not at present meddle with the Physical Consideration of the Mind; or trouble my self to examine, wherein its Essence consists, or by what Motions of our Spirits, or Alterations of our Bodies, we come to have any Sensation by our Organs, or any *Ideas* in our Understandings; and whether those *Ideas* do in their Formation, any, or all of them, depend on Matter, or no. These are Speculations, which, however curious and entertaining, I shall decline, as lying out of my Way.
>
> (E 1.1.2 43)

Locke claims that he will not concern himself with the "physical consideration of the mind," since he takes this to be unnecessary to his project.

The topics he lists as irrelevant include both physical and metaphysical ones: he proposes to ignore both questions about the essence of the mind as well as about the causal mechanisms by which we have sensations. We might wonder, however, how Locke thinks he can carry out his project without troubling himself with the physical consideration of the mind. One might naturally think that the question about the *origin* of our knowledge can *only* be answered by considering how objects affecting our sense organs give rise to ideas. Taking into account Locke's commitment to empiricism, this becomes even more puzzling: if the origin of all of our ideas is in experience, and experience begins with sensation (though it also includes reflection), shouldn't we expect an account of the origin of our knowledge to begin with an account of how objects affect our sense organs and give rise to ideas? Similarly, explaining the certainty and extent of our knowledge would seem to depend on understanding how objects affect our senses: one might think that explaining both the certainty and the extent of knowledge depends essentially on a physiological account of how bodies affect our senses. It seems puzzling from the start why Locke would think that the physical consideration of the mind is out of his way.

Moreover, in addition to his empiricist commitments, Locke was trained as a medical doctor. One might think that someone with medical training would be particularly interested in giving a physiological explanation or at least think that a physiological explanation is relevant to understanding the origin and extent of our knowledge.

Yet Locke holds that a physical consideration of how our senses operate is not necessary to our being assured of the reliability of our senses. Locke thinks that developing a causal story—one that is at least partly physiological, and that considers the causal processes between external objects and our sense organs and between our sense organs and our minds—is both unfeasible and unnecessary.[3] I'm going to call this kind of causal story a "physiological explanation."

One might object, as Daniel Garber suggested in conversation, that Locke's setting aside the physical consideration of the mind is not really puzzling at all, since Locke is engaged in a different sort of project: Locke's project is to develop a logic—in the seventeenth-century sense of a study of the origin, significance, and use of mental and linguistic signs—rather than to engage in natural philosophy. Indeed, in the final section of *Essay*, Locke claims that natural philosophy studies "the Nature of Things, as they are in themselves, their Relations, and their manner of Operation;" logic, in contrast, considers "the Nature of Signs, the Mind makes use of for the understanding of Things, or conveying its Knowledge to Others" (E 4.21.2–4 720). A study of the nature of signs and the use we make of them *should* sidestep questions about the causal processes that lead to cognition, as well as metaphysical questions about the nature of minds and their ideas. While Locke doesn't say explicitly that he is engaged in logic and not natural philosophy, it does seem to be

clearly implied by this suggestion that the physical workings of the mind and its metaphysical nature are not his concern. Moreover, the structure of the *Essay* seems to have a good deal in common with traditional logic texts: very roughly, it starts by explaining how we come to have a stock of signs—first mental signs or ideas and then linguistic ones—and then explains how we combine them in various ways to achieve knowledge. Thus, one might conclude that Locke's setting aside the physical consideration of the mind isn't puzzling at all; it's just part and parcel of his writing a logic text.

However, we might instead see the suggestion that Locke is engaged in logic rather than natural philosophy presenting the same puzzle in a slightly different form. In distinguishing logic and natural philosophy, Locke also describes logic as the study of "the ways and means, whereby the Knowledge of [natural and practical philosophy], are attained and communicated" (E 4.21.1 720). Thus, logic, as Locke understands it, is supposed to explain the ways and means by which we come to know the nature of things and what we ought to do. This is a much broader conception of logic than, for example, the study of valid and invalid arguments or good and bad inferences. If logic, in Locke's view, is supposed to explain how we can come to know about the natural world and about our moral obligations, mustn't it do this by considering the causal processes by which we come to be in cognitive contact with the world? In short, if logic explains the origin, extent, and certainty of our knowledge, as Locke describes his project at the outset of the book, it is puzzling how Locke could develop a logic, in his sense, that sidesteps the causal consideration of the mind.

After setting aside the physical consideration of the mind at the outset, Locke returns to this issue and makes an even stronger claim in Book IV: he claims that ignorance of the causal mechanisms by which our sense organs operate does not prevent us from having knowledge of the external world by our senses. He writes:

> 'Tis therefore the actual receiving of *Ideas* from without, that gives us notice of the *Existence* of other Things and makes us know, that something doth exist at that time without us, which causes that *Idea* in us, though perhaps *we neither know nor consider how it does it:* For it takes not from the certainty of our Senses, and the *Ideas* we receive by them, that *we know not the manner wherein they are produced*.
>
> (E 4.11.2 630, final italics added)

Locke here makes two closely related points: First, I can have knowledge of the existence of some external object without any awareness or even consideration of the causal mechanisms by which that object affects my senses and gives rise to an idea of that object. In other words, ordinary

people, children, and even animals can have knowledge of the existence of external objects, even if they don't (and can't) give any thought to the causal mechanisms in virtue of which the external objects affect their senses and give rise to ideas. To see the second point, consider that one might hold this, but still insist that some such causal story is part of a *philosophical explanation* of sensitive knowledge—part of the philosophical account of how we can genuinely have knowledge of the existence of external objects. Thus, one might think that part of the task of understanding how we can have sensitive knowledge is understanding how our physical senses work—what the causal mechanisms are by which external objects affect our senses and how these give rise to ideas—and this would be part of the explanation for why it is that one can have knowledge of external things even without considering those mechanisms. Thus, I take it that Locke's second, stronger, and more surprising point is that such a physiological story need not be part of the philosophical explanation either. We can be assured that our senses are reliable and give us knowledge—it is "an assurance" he tells us "that *deserves the name of Knowledge*"—even though we are ignorant of the causal mechanisms in virtue of which objects affect our senses (E 4.11.3 631). This is surprising.

Locke continues the paragraph I've just quoted with an example:

> whilst I write this, I have, by the Paper affecting my Eyes, that *Idea* produced in my Mind, which whatever Object causes, I call *White*; by which I know, that that Quality or Accident (*i.e.* whose appearance before my Eyes, always causes that *Idea*) doth really exist, and hath a Being without me. And of this, the greatest assurance I can possibly have, and to which my Faculties can attain, is the Testimony of my Eyes, which are the proper and sole Judges of this thing, whose Testimony I have reason to rely on.
>
> (E 4.11.2 631)

How can Locke be so confident that my eyes are the sole and proper judges of the existence of the paper, without any understanding of how the paper actually affects my eyes and how my eyes give rise to an idea in my mind? How can I have reason to rely on the testimony of my eyes, if no one knows how our eyes actually work? How can we know that their testimony is at all reliable? Moreover, Locke claims that the quality that I call white *always* causes that idea. But why should he think this? First, this just seems obviously false, since in nonstandard conditions it won't cause the idea of white: in the dark it won't look white, and if I have jaundice the paper might look yellow as a side-effect of bilirubin in my eyes. Second, even if we suppose that it is true, how could one know that it is true without a physiological story about how my eyes work, a story that explains why they are reliable witnesses?

These questions are particularly pressing if one takes Locke to be a reliabilist about sensitive knowledge, which a number of commentators (including Martha Bolton) do.[4] If we have sensitive knowledge in virtue of our senses operating reliably, don't we need to assure ourselves that our senses do operate reliably in order to be sure that we have sensitive knowledge? Here I think distinguishing the two points above is helpful. A reliabilist can claim that our knowing how our senses operate is irrelevant to our having sensitive knowledge: one has sensitive knowledge if the senses are operating reliably whether or not one understands the mechanism, or even knows that the senses are operating reliably. But a philosophical defense of our having sensitive knowledge would require showing that the conditions on our having sensitive knowledge are sometimes met: and this would seem to require showing that our sense organs operate reliably. And doing this would seem to require some sort of physiological explanation.

So why does Locke think that this sort of physiological story is "out of his way"? One possibility is that Locke thinks that we are entitled to take for granted the reliability of our senses, that they have a kind of authority prior to any epistemological investigation.[5] This authority might be defeasible: there may be conditions under which we have reason to think that our senses might be deceiving us—perhaps, say, about things that are very small or far away, or about the colors of objects when one has jaundice—but in the absence of evidence that we are in such conditions, we have reason to rely on our senses. This is, of course, familiar as a kind of response to a particular kind of skeptical challenge: we do not need to *prove* that our faculties are reliable *before* relying on them, since this is an impossible task: we cannot step out of them, as it were, to prove their reliability. There are passages in the *Essay* that seem to suggest something like this position: "For we cannot act any thing, but by our Faculties; nor talk of Knowledge it self, but by the help of those Faculties, which are fitted to apprehend even what Knowledge is" (E 4.11.3 631).

One reason for thinking that our faculties have this sort of authority is that the project of trying to vindicate them without taking for granted their reliability seems hopeless: we would have to employ our faculties in any such attempt to vindicate them. And if we look specifically at the attempt to give a physiological explanation of how the senses work in order to show that they are reliable, it is easy to see that any such physiological explanation would have to make use of observational data; investigating the physiology of the senses at least begins with empirical observation and so presupposes the reliability of the senses. So it might seem that the only position Locke can reasonably hold, barring some radical form of skepticism, is that our faculties, including our sense organs, have a kind of authority prior to investigation.

Nevertheless, I think this is not Locke's view. The prior authority view is at odds with Locke's remarks about how the *Essay* came to be in the Epistle to the Reader. He writes:

> Were it fit to trouble thee with the History of this Essay, I should tell thee that five or six Friends meeting at my Chamber, and discoursing on a Subject very remote from this, found themselves quickly at a stand, by the Difficulties that rose on every side. After we had a while puzzled our selves, without coming any nearer a Resolution of those Doubts which perplexed us, it came into my Thoughts, that we took a wrong course; and that, before we set our selves upon Enquiries of that Nature, it was necessary to examine our own Abilities, and see, what Objects our Understandings were, or were not fitted to deal with.
>
> (E Epistle 7)

There are two important things to take away from this description of the task of the *Essay*. First, Locke here conceives of it as an examination of our abilities, or faculties. Second, he thinks of this examination as rightly—even necessarily—*prior* to the use of those faculties in settling certain sorts of disputes. It is not *impossible* that he thinks that our perceptual faculties have a kind of prior authority, but this certainly seems at odds with the claim that we ought to examine our abilities and consider what kinds of knowledge they are suited to our having, *before* we try to settle controversial questions. Perhaps one might argue that simple cases of sensation—like seeing a white piece of paper—are not controversial questions, and so the senses have a prior authority, such that we are entitled to rely on them prior to investigating their reliability. This could be so, even though our collective abilities and faculties do *not* have the authority to settle controversial questions, such as questions, say, about the nature of morality, prior to investigating their reliability. But it seems to me unsatisfying, to say the least, that the outcome of Locke's proposed project of examining our own abilities is a realization that our abilities must have a prior authority. This seems dangerously close to holding both that a certain project should be carried out and at the same time maintaining that this very project is misguided because impossible to carry out.

So what's the solution? Here's where I think Locke has a very different type of causal explanation of how sensation works, one that reveals that the senses are reliable, when conceived as operating in a certain way, but an explanation that does not depend on empirical observation. It is a causal explanation of how sensation works that is, surprisingly, *a priori*, and one that cleverly bypasses any physiological story. To be clear: Locke is not somehow showing at once how all our faculties could be

vindicated without using any of them—this *would* be impossible. Rather, he is attempting to show how sensation—understood in the right way—can be vindicated, in a way that does not presuppose the reliability of sensation.

3. A Causal Explanation of Sensitive Knowledge

Let's turn then to the sort of causal explanation of sensitive knowledge Locke gives. Here I take the liberty to draw primarily upon my own interpretation of Locke's treatment of sensitive knowledge,[6] though I suspect that many of the points about the *kind* of account Locke is giving could also be accepted by commentators with different interpretations of Locke on sensitive knowledge.

We can start by returning to Locke's puzzling remark that the quality of the paper I call white always produces the same idea, namely the idea of white. We saw that the problem is that this claim seems *obviously* false.[7] My proposal is that Locke's account of sensitive knowledge actually is intended to give us reason to hold that it is true. It does this by combining two claims. The first claim has to do with the way in which ideas of sensation represent. Locke claims that simple ideas of sensation represent their causes. For example, Locke argues that our simple ideas are all adequate:

> That *all our simple* Ideas *are adequate*. Because being nothing but the effects of certain Powers in Things, fitted and ordained by GOD, to produce such Sensations in us, they cannot but be correspondent, and adequate to those Powers: And we are sure they agree to the reality of Things. For if Sugar produce in us the *Ideas*, which we call Whiteness, and Sweetness, we are sure there is a power in Sugar to produce those *Ideas* in our Minds, or else they could not have been produced by it. And so each Sensation answering the Power, that operates on any of our Senses, the *Idea* so produced, is a real *Idea*, (and not a fiction of the Mind, which has no power to produce any simple *Idea*;) and cannot but be adequate, since it ought only to answer that power.
>
> (E 2.31.2 375)

In other words, if simple ideas represent their causes, then we know that they represent reliably, since they represent whatever power it is that actually caused them. The trouble is that this is not enough to deliver the result that we need, which was that the power we call white *always* causes the idea of whiteness. Even if every token sensation represents the token power that causes it, it doesn't follow that every idea of some type—every idea of white—is caused by a power of the same type—namely the quality we call white. This is where the second claim

comes in: Locke holds that qualities, or powers to produce ideas in us, are individuated by their effects, that is, by the kind of ideas they bring about.[8] If one thinks of powers as individuated by their effects, rather than, for example, by the intrinsic properties of the body that has the power, for example, the texture or arrangement of the primary qualities of the bodies, then it will just fall out of the analysis that every idea of white is caused by a power to produce ideas of whiteness. The cost of this view is that we can't be sure that the things that have the power we call whiteness all have the same intrinsic, categorical properties—we are left with the possibility that a type of power is grounded in objects in very different ways. But we can be sure that our simple ideas of sensation reliably, even infallibly, represent the powers of things to cause ideas in us. Indeed, we can see in the passage quoted above that Locke implicitly relies on the thought that qualities are individuated by their effects, since he claims that the sensation of sweetness could not be caused by the sugar unless the sugar had the quality of sweetness. Locke rules out the possibility that the sensation of sweetness could be caused by something that is in fact sour because he treats qualities or powers as individuated by their effects.

Much more could be said about how Locke thinks of such powers, but for our purposes it's most important to take a step back and think about the kind of story Locke is giving us here. It is a *causal* story, his vindication of sensitive knowledge depends both on the claim that simple ideas of sensation represent the powers that cause them and that these powers are individuated by the types of ideas that they cause. But we might wonder *why* either of these things is the case. Why think that simple ideas of sensation represent the powers that cause them? Why think that this is the right account of the representational content of such ideas? And why think that qualities or powers to cause ideas in us are individuated by the types of ideas that they cause? Why think that this is the correct way of individuating powers, rather than by the intrinsic, categorical properties that ground the powers? In virtue of what is one of these ways of individuating powers right and the other wrong?

First, these aren't empirical claims, or at least not in a simple, straightforward way. By this I mean that I don't think that Locke allows that there could be observational evidence that would somehow convince us that our account either of how simple ideas represent or of how powers are individuated is wrong. If we developed "microscopical eyes" (as Locke might put it) and could see the textures of bodies, we would *not* have reason to think that our way of individuating powers was mistaken, though we might come to see that some powers are grounded in bodies in multiple ways. Perhaps we might even begin to individuate powers in a new way, since we would respond to objects differently. But I don't think Locke can allow that we might discover that many things that we seemed to see as white turned out not to be white at all.

Yet, if these aren't empirical claims, we might wonder what justifies them. It may seem surprising if Locke holds that we can know *a priori* that powers are really individuated by their effects or that simple ideas must represent their causes. Worse, it might seem that Locke is engaged in metaphysical wishful thinking: "If powers were individuated by their effects and simple ideas represent their causes, we would have sensitive knowledge. It would be really great if we had sensitive knowledge. Therefore, powers really are individuated by their effects and simple ideas really do represent their causes." Don't we need some independent reason to think that these two claims are true?[9]

I propose that Locke's answer has to do with what sensation is for, that is, what its functional role is. This is suggested by the claim that God "fits" things with powers to produce ideas in us. Similarly, Locke writes:

> For these several Appearances [i.e. ideas of sensation], being designed to be the Marks, whereby we are to know, and distinguish Things, which we have to do with; our *Ideas* do as well serve us to that purpose, and are as real distinguishing Characters, whether they be only constant Effects, or else exact Resemblances of something in the things themselves: the reality lying in that steady correspondence, they have with the distinct Constitutions of real Beings. But whether they answer to those Constitutions, as to Causes, or Patterns, it matters not; it suffices, that they are constantly produced by them.
>
> (E 2.30.2 372–73)

Locke claims that sensation serves the purpose of allowing us to know and distinguish the things we have to do with; in short, it has as its purpose enabling us to negotiate our environments. Locke claims that thinking of ideas of sensation as "only constant Effects" of bodies, rather than resemblances of them, is sufficient to fulfill this purpose. Thus, Locke suggests that the reason for thinking that the claim about representation is true is that thinking of representation in this way suffices for our having sensations that fulfill their purpose. Although Locke doesn't explicitly make a parallel argument in defense of the individuation claim, it's reasonable to assume that he has something like this in mind. Treating powers to produce ideas in us as individuated by the ideas they produce suffices to explain how we can have reliable sensations of types of powers, which is crucial to our being able to negotiate our environments.

Thus, Locke's largely *a priori* account of how sensation works is justified by the functional role that sensation is intended to fill. This allows him to show that sensation, conceived in the right way, must be reliable, in a way that entirely bypasses any sort of physiological story about how the senses operate.

4. Reflection and Causation

Turning our attention from sensation to reflection, we find that causation has an important role to play in explaining how we acquire knowledge through reflection. Locke's account of reflection depends essentially on our having a kind of cognitive access into our own mental activity and passivity. Let's begin by considering his account of a certain kind of reflection: our knowledge that we are sensing when we are sensing. It's worth noting at the outset that a number of Locke scholars take sensitive knowledge itself to be or essentially involve a kind of reflection.[10] For example, some take sensitive knowledge to be the knowledge that one is sensing and that sensations have an external cause. I agree with such commentators that Locke thinks we have such knowledge, but I don't think that this is sensitive knowledge, but rather a species of reflection, since it is knowledge of our own mental operations.[11]

Returning to the chapter "Knowledge of the Existence of other Things," we find that Locke claims early in the chapter that he knows the paper is white by "the Testimony of [the] Eyes, which are the proper and sole Judges of this thing." But a bit later Locke goes on to do something quite puzzling: he claims "But besides the assurance we have from our Senses themselves, that they do not err in the Information they give us, of the Existence of Things without us, when they are affected by them, we are farther confirmed in this assurance, by other concurrent Reasons" (E 4.11.3 631–32). He goes on to give four concurrent reasons.

In examining these concurrent reasons, I think that we ought to take care—more care than Locke himself actually does—to distinguish two questions:

1. When I am sensing, how do I know that, for example, there is something white?
2. When I am sensing, how do I know that I am sensing?

The first question is a question about how sensitive knowledge is possible. The answer to this question leaves open the answer to the second question: how can I know that I'm sensing, when I'm sensing? The second question is really a question about reflection, since it is a question about how I can know my own mental operations, for example, how I can know I am sensing and not remembering or imagining or dreaming. The answer to the first question, it turns out, has already been given by the time Locke reaches the chapter on knowledge of external things, though he reminds us of it when he tells us that the quality or power of the paper that I call white "always causes that *Idea*" and so I can thereby know that this power exists. Nevertheless, the answer to the first question leaves plenty of room for doubt, since it may well be the case that when I am sensing I know that there is something white, but I may not be

in a position to know whether I am sensing. So the question Locke needs to consider then, is how I know that I am sensing, when I am sensing.

In other words, sensation can be infallible without being indubitable. If this seems surprising, the same seems to be true of demonstration: demonstration is infallible, but not indubitable because one can wonder whether one has really successfully demonstrated something or whether one perhaps made a mistake. This is, of course, a common experience in logic or math classes: a correct proof is infallible, but there is plenty of room to worry that one has not actually given a proof. Similarly, it may be the case that if I am sensing, I have sensitive knowledge that, say, the paper is white, but I might still wonder whether I really am sensing, for example, if I'm pressed by a skeptic who insists that "all we see and hear, feel and taste, think and do . . . is but the series and deluding appearances of a long Dream" (E 4.11.8 634). This implies that Locke must—and does—deny the KK principle that when one knows that *p*, one knows that one knows that *p*.

Indeed, Locke seems to consider the skeptical challenge to be a challenge to our knowledge that we are sensing. If I cannot tell whether I am sensing or not, then I'm in trouble, even if it is the case that I have sensitive knowledge when I am sensing. I might know that there is something white and yet wonder whether I really know it, because I doubt whether I am sensing or not.

Fortunately, Locke thinks that we are in a position to know that we are sensing by reflection. Locke holds that we can tell whether we are the causes of our sensations. Here are Locke's four concurrent reasons:

1. 'Tis plain, those Perceptions are produced in us by exterior Causes affecting our Senses: *Because those that want the Organs of any Sense, never can have the* Ideas *belonging to that Sense* produced in their Minds. (E 4.11.4 632)
2. Because *sometimes I find, that I cannot avoid the having those* Ideas *produced in my Mind*. . . . So that there is a manifest difference between the *Ideas* laid up in my Memory; . . . and those which force themselves upon me, and I cannot avoid having. And therefore it must needs be some exterior cause, and the brisk acting of some Objects without me, whose efficacy I cannot resist, that produces those *Ideas* in my Mind, whether I will, or no. (E 4.11.5 632)
3. Add to this, that *many of those* Ideas *are produced in us with pain, which afterwards we remember without the least offence*. . . . And we remember the pain of *Hunger*, *Thirst*, or the *Head-ach*, without any pain at all; which would either never disturb us, or else constantly do it, as often as we thought of it, were there nothing more but *Ideas* floating in our Minds, and appearances entertaining our Fancies, without the real Existence of Things affecting us from abroad. (E 4.11.6 633)

> 4. Our *Senses* in many cases bear *witness* to the Truth of each other's report, concerning the Existence of sensible Things without us. He that sees a *Fire*, may, if he doubt whether it be any thing more than a bare Fancy, feel it too; and be convinced, by putting his Hand in it. Which certainly could never be put into such exquisite pain, by a bare *Idea* or Phantom, unless that the pain be a fancy too: Which yet he cannot, when the Burn is well, by raising the *Idea* of it, bring upon himself again. (E 4.11.7 633)

These four concurrent reasons all purport to show that some of our ideas are caused by external objects. I suggest that Locke thinks that it is necessary that sensations are caused by external objects: thus, it is impossible and contradictory to think that there could be a sensation that lacked an external cause. If this is right, the concurrent reasons are intended to show that (a) some of our ideas are sensations and (b) we can tell, indeed may even be in a position to know, which of our ideas are sensations.

Admittedly, some of these concurrent reasons are odd, and I confess I'm not sure what to make of them. For example, the first reason is that some of our ideas must have exterior causes because people who lack the relevant sense organs lack the relevant ideas. If we think that Locke is here giving us reason to think that some of our ideas have external causes at all, we might wonder how he can help himself to the observation that, say, blind people lack ideas of colors. Thus, it isn't entirely clear what sort of challenge Locke thinks he is responding to; why, for example, someone who doubts that any of our ideas are caused by external objects would grant the observation that blind people lack ideas of colors.

Nevertheless, the second concurrent reason seems to be the most important. Locke claims that some of our sensations are caused in a way that is indifferent to the will, while other ideas, especially memories but perhaps also mere imaginings, are subject to the will. Moreover, Locke claims that sensations, which are not subject to the will, are manifestly different from those ideas that are subject to the will.

Locke holds that certain ideas must be caused by external objects, because they are not caused by us. Thus, Locke seems to infer that if an idea is not subject to the will, then it is not caused by me. Therefore, it must be something else—something outside of me—that is the cause. One might wonder about this inference: ideas in dreams seem not to be subject to the will, and yet they do not have an external cause. Locke seems to think that if an idea is indifferent to the will in the right way, it must have an external object as its cause. But this seems to preclude the possibility that some ideas are caused by me but not in a way that is subject to the will.

This inference is problematic, since Locke elsewhere holds that some ideas are not free—they are not under the control of the will—and he

recognizes that some of these ideas are not sensations. Thus in the chapter on power we find Locke claim:

> A Man on the Rack, is not at liberty to lay by the *Idea* of pain, and divert himself with other Contemplations: and sometimes a boisterous Passion hurries our Thoughts, as a Hurricane does our Bodies, without leaving us the liberty of thinking on other things, which we would rather chuse. But as soon as the Mind regains the power to stop or continue, begin or forbear any of these Motions of the Body without, or Thoughts within . . . we then consider the Man as a free Agent again.
>
> (E 2.21.12 329–420)

The man on the rack is not necessarily a problem, since his pain is part of his sensations and so not subject to the will. Indeed, the connection between sensation and pleasure and pain are particularly important to Locke and the focus of the third concurrent reason. But boisterous passions are a problem, since they seem to give rise to ideas that are not subject to the will but which are clearly not sensations either. So it looks like Locke cannot endorse the inference from an idea's not being subject to the will to its having an external cause. One possible response, however, is that we can tell when an idea has a boisterous passion as its cause, and this allows us to distinguish between sensations and thoughts forced upon us.

Second, Locke suggests that there is a manifest difference between those ideas that are indifferent to the will and those that are not. So it is not just that some ideas must have external causes, but that I can *tell* whether an idea is one of "those which force themselves upon me, whose efficacy I cannot resist" (E 4.11.5 632). Locke suggests that the manifest difference between sensations and other ideas is not merely that the former are indifferent to the will, but that they are intrinsically different. Locke claims that the sensation of the sun and the memory of it are so distinct that "few of his *Ideas* are more distinguishable one from another" (E 4.11.5 632). I take it then, that Locke holds that we can distinguish ideas of sensation from other ideas by this manifest difference and then we discover that the ideas in the former camp are indifferent to the will.

Locke concludes the second concurrent reason by claiming explicitly that we can *know* when we are sensing. The other three concurrent reasons can plausibly be read as merely probabilistic, perhaps, which is why I take the second to be the most important.[12] After describing the distinction between the sensation and memory of the sun, Locke concludes, "And therefore he hath certain knowledge, that they are not both Memory, or Actions of the Mind, and Fancies only within him; but that actual seeing hath a Cause without" (E 4.11.5 632).

5. The Cognition of Causation

Locke's account of reflection depends on our being able to tell whether our will is or isn't the cause of an idea. In this final part of the chapter, let's consider briefly the sort of awareness of the causes of our ideas that Locke's account of reflection presupposes we have. Our knowledge that we are sensing depends on being able to tell that ideas of sensation are indifferent to the will. And our awareness of the mind's activity and passivity is integral to Locke's treatment of reflection more generally. Indeed, Locke distinguishes perception and thought in terms of the mind's activity:

> *Perception*, as it is the first faculty of the Mind, exercised about our *Ideas*; so it is the first and simplest *Idea* we have from Reflection, and is by some called Thinking in general. Though Thinking, in the propriety of the *English* Tongue, signifies that sort of operation of the Mind about its *Ideas*, wherein the Mind is active; where it with some degree of voluntary attention, considers any thing. For in bare naked *Perception*, the Mind is, for the most part, only passive; and what it perceives, it cannot avoid perceiving.
>
> (E 2.9.1 143)

When Locke discusses memory, he claims that most, but not all, memories involve mental activity. He claims:

> In this secondary Perception, as I may so call it, or viewing again the *Ideas*, that are lodg'd *in* the *Memory*, *the Mind is oftentimes more than barely passive*, the appearance of those dormant Pictures, depending sometimes on the Will. . . . Though sometimes too they start up in our Minds of their own accord, and offer themselves to the Understanding; and very often are rouzed and tumbled out of their dark Cells, into open Day-light, by some turbulent and tempestuous Passion. . . . But also that the Mind takes notice of them, as with *Ideas* it had known before.
>
> (E 2.10.7 153)

Again, this looks like a problem for the argument that we can know we are sensing because those ideas are indifferent to the will, since Locke thinks that some memories are not the result of our mental activity but of "turbulent and tempestuous Passion." But here, too, he seems to think that memories are noticeably different from sensations, and perhaps also that we can tell when they are the effects of a tempestuous passion.

Locke seems simply to assume that we are aware of the mind's activity and passivity in a way that seems surprising. Indeed, in light of Hume's

later criticism, it is hard not to think that Locke is helping himself to something quite significant.

Let's think a bit more about what the indifference to the will is that Locke thinks characterizes sensation. Locke claims that we find that we cannot avoid having certain ideas. His example is "if I turn my Eye at noon towards the Sun, I cannot avoid the *Ideas*, which the Light or the Sun, then produces in me" (E 4.11.4 632). Of course, I can avoid having the ideas by closing my eyes or turning away. Thus, the way in which they are forced upon me has to be consistent with my exercising some control about whether or not I have them. Presumably, what Locke has in mind is that they may be partially under my control insofar as I can move my body in such a way that I can produce or prevent certain sensations: if I want to taste sugar, I can go to the store, buy something sweet, and eat it. But they are not under the control of mental action alone: I cannot bring them about merely by willing nor prevent them merely by willing (recall the man on the rack), I can only try to bring it about that I am in a position where they are or are not forced upon me.

Moreover, Locke does not think that the way in which sensations are forced upon me is merely that they follow a volition. So, for example, I might want to smell a rose and this might be followed by a sensation of rose scent, if there happens to be a rose nearby. Locke's claim that sensations are forced upon me seems to suggest that in such cases I am aware that I would have the idea even if I willed not to have it. Thus, Locke supposes that I can be aware of the counterfactual independence of the sensation on my will, that is, that the sensations I have I would have even if I willed not to have them (setting aside my ability to move my body to control sensations). I take it that this is the awareness of their being forced upon me: it is not just an awareness that I am not the cause, but an awareness that they *cannot* be either produced or prevented by the will alone.

This is closely connected to how Locke thinks of mental activity and passivity. In the passage above, he connects the activity of the memory to the dependence of the ideas on the will. Interestingly, he seems to count the case where a memory is brought about by a tempestuous passion as a case of the mind's being passive as well. Thus, Locke's view is that activity is a matter of volition. Locke says that the will is "nothing but a power in the Mind to direct the operative Faculties of a Man to motion or rest, as far as they depend on such direction" (E 2.21.29 249). Locke thinks of the will as a general power of directing the mind, and he seems to assume that it is unproblematic and perhaps even uncontroversial that we have an awareness both of the operation of this power and of its range, that is, whether something is outside its influence.

This sort of awareness also seems to be required by Locke's account of freedom. A free action must both be caused by the will, but must also be such that if one had willed not to perform the action, one would not

have performed it. Thus, an action may be voluntary—produced by the will—without being free, since it may have been produced by something else if it had not been voluntary. Assuming, as I think is highly plausible, that Locke thinks we can sometimes *know* whether an action is free, it seems Locke is committed to holding that we can sometimes know not only that the will is the cause of something but also the counterfactual fact that not performing the action was also under our volitional control.

Locke seems to think of the will then as something like a spotlight—the mind controls the direction of the will and some of its faculties, like memory and imagination, are in its purview, but our sensations fall out of its scope, and we can be aware of this.[13] Locke's account of reflection presupposes that we can tell by reflection not only whether some idea is the product of the will, but also whether it is the kind of thing that *could* be the product of the will. Thus, we are aware not only that some ideas are not the product of the will but also that they could not be. Similarly, if we know that an action is free, we must know that if we had willed not to do it, we wouldn't have done it; that, under the circumstances, willing the action was both necessary and sufficient for its occurring. Thus, Locke's account of cognition—particularly of reflective cognition—requires a robust form of causal experience or awareness of the mind's causal activity and passivity. Hume's insistence in *An Enquiry Concerning Human Understanding* (EHU 7.1 65–69) that we are no more aware of the mind's causal activity than we are aware of the causal power of bodies, then, turns out to be a blow right at the foundations of Locke's epistemology.[14] Hume challenges not only Locke's account of power and of freedom, but also his response to the external world skeptic, by questioning whether we can really tell whether we are sensing, when we are sensing.

Notes

1. Parenthetical references to Locke's *An Essay Concerning Human Understanding* [E] include book, chapter, and paragraph numbers, followed by the page number in the Nidditch edition.
2. It might seem that Locke is committed at least to ideas being objects rather than acts, but even this is controversial. Yolton argues forcefully that Locke holds that ideas are acts, not objects, though this interpretation has since largely fallen out of favor (see Yolton 1984). Allen argues, convincingly to my mind, that Locke intentionally attempts to remain neutral on questions about the ontological nature of ideas (see Allen 2010).
3. Whether Locke thinks that such a physiological story is genuinely impossible, or merely unlikely to be forthcoming, depends, in part, on the best reading of Locke's controversial claims about what he calls "superaddition." Locke holds that it is possible that God superadded the power of thought to matter, so that it is possible, if unlikely, that our minds are material. He also claims that God assigns some qualities to things by superaddition. For example, he writes that, "the production of sensation in us of Colours and Sounds, etc. by impulse and motion . . . we cannot but ascribe . . . to the arbitrary Will and good Pleasure of the Wise Architect" (E 4.3.29 559–60). Commentators

are divided about whether to understand these claims as metaphysical or epistemic. On the former reading, Locke's view is that there is genuinely nothing to know about why certain material objects cause certain types of sensations, such as those of secondary qualities; they are simply the result of God's arbitrary will and good pleasure. On the latter reading, Locke's view is that we have no explanation of why certain material objects cause certain types of sensations, so in our ignorance, we must just defer to God's will. On this epistemic reading, there is something to be known, but Locke is highly pessimistic about the prospects of our discovering it. Similarly, if the power of thought were superadded to matter, then it seems understanding how material minds work would either be impossible—because there would be nothing to know—or highly unlikely to be achieved. For more on this issue, see Wilson 1999; Ayers 1981.

4. See, for example, Bolton 2004; Ott 2012.
5. I'm grateful to Tad Schmaltz for helpfully pressing me on this issue.
6. See Marušić 2016.
7. For Locke on the possibility of perceptual error, see Lolordo 2008.
8. For an interpretation in a similar spirit, see Priselac 2016.
9. Alternatively, we might read Locke as giving some sort of transcendental argument here, to the effect that the truth of these two claims is a condition on our possibly having sensitive knowledge. There are two reasons not to read Locke in this way: First, this would require assuming that we do have sensitive knowledge, which I think is at odds with the *Essay's* aim of considering the origins, certainty, and extent of our knowledge. Second, it seems to me that Locke argues that if these two claims are true we have sensitive knowledge, and not that we only have sensitive knowledge if these two claims are true. The transcendental argument would require the biconditional.
10. See, for example, Newman 2007; Allen 2013; Nagel 2016.
11. Sensitive knowledge, strictly speaking, includes cases like knowing that there is something red, knowing that there is something red and round, or knowing that there is something solid and spherical.
12. Rickless 2015 argues that the concurrent reasons are all probabilistic and that this has significant consequences for Locke's response to the external world skeptic (see Rickless 2015).
13. One problem with this account of recollection is how to understand the mind's willing to recall something: one might worry that the account is circular, that one has to recall something in order to will that one recall it. But I'll leave this problem for a future occasion.
14. The parenthetical citation is to the section, part, and page numbers in Hume 1975.

Literature

Allen, Keith. "Locke and the Nature of Ideas." *Archiv für Geschichte der Philosophie* 92, no. 3 (2010): 236–55.

———. "Locke and Sensitive Knowledge." *Journal of the History of Philosophy* 51, no. 2 (2013): 249–66.

Ayers, Michael. "Mechanism, Superaddition, and the Proof of God's Existence in Locke's *Essay*." *The Philosophical Review* 90, no. 2 (1981): 210–51.

Bolton, Martha Brandt. "Locke on the Semantic and Epistemic Role of Simple Ideas of Sensation." *Pacific Philosophical Quarterly* 85 (2004): 301–21.

Hume, David. *An Enquiry Concerning Human Understanding*. Edited by L. A. Selby-Bigge and Peter H. Nidditch. Oxford: Oxford University Press, 1975. [EHU]

Locke, John. *An Essay Concerning Human Understanding*. Edited by Peter H. Nidditch. Oxford: Clarendon Press, 1975. [E]

LoLordo, Antonia. "Locke's Problem Concerning Perceptual Error." *Philosophy and Phenomenological Research* 77 (2008): 705–24.

Marušić, Jennifer Smalligan. "Locke's Simple Account of Sensitive Knowledge." *The Philosophical Review* 125 (2016): 205–39.

Nagel, Jennifer. "Sensitive Knowledge: Locke on Skepticism and Sensation." In *Blackwell Companion to Locke*, edited by Matthew Stuart, 313–33. London: Blackwell, 2016.

Newman, Lex. "Locke on Knowledge." In *The Cambridge Companion to Locke's "Essay Concerning Human Understanding"*, edited by Lex Newman, 313–51. Cambridge: Cambridge University Press, 2007.

Ott, Walter. "What Is Locke's Theory of Representation?" *British Journal for the History of Philosophy* 20 (2012): 1077–95.

Priselac, Matthew. *Locke's Science of Knowledge*. New York: Routledge, 2016.

Rickless, Samuel. "Locke's Sensitive Knowledge: Knowledge or Assurance?" In *Oxford Studies in Early Modern Philosophy*, edited by Daniel Garber and Donald Rutherford, vol. 7, 187–224. Oxford: Oxford University Press 2015.

Wilson, M. "Superadded Properties: The Limits of Mechanism in Locke." In *Ideas and Mechanism: Essays on Early Modern Philosophy*, 196–214. Princeton: Princeton University Press, 1999.

Yolton, John. *Perceptual Acquaintance from Reid to Locke*. Mineapolis: University of Minnesota Press, 1984.

12 Embodied Cognition Without Causal Interaction in Leibniz

Julia Jorati

1. Introduction

How important is the body for human cognition? There is a range of possible answers. Toward one end of the spectrum are Aristotelians, who typically take the body to be enormously important. For instance, Thomas Aquinas claims that "there is no thinking without phantasm" (SCG 4.11.5) and that these phantasms are in corporeal organs.[1] Cartesians, in contrast, are near the opposite end of the spectrum: they typically do not consider the body to be very important for human cognition. While certain modes of thought depend on the mind–body union, many kinds of cognition are entirely independent of the body. Descartes stresses that "in understanding the mind employs only itself," and that this radically distinguishes understanding from imagination, in which "the mind contemplates a corporeal form" (Fifth Replies, AT 7:385/CSM 2:264).[2]

It may be tempting to think that Leibniz's position on the embodiment of human cognition is much closer to Cartesianism than to Aristotelianism. After all, he insists that there are many innate ideas in the mind and that we can know a significant range of truths *a priori*. In fact, one might be tempted to think that for Leibniz, cognition depends on the body even less than for Descartes, since Leibniz denies that mind and body interact at all, in metaphysical strictness. Yet, I will argue that Leibniz is much closer to the Aristotelian than to the Cartesian end of this spectrum. He holds, as he puts it in a letter to Queen Sophie Charlotte in 1702, that "the external senses are necessary for our thinking, and . . . if we did not have any, we would not think" (A 1.21.344/AG 191). In other words, all human cognition—even the most abstract or intellectual—depends on the body or on the bodily senses.

My aim in this chapter is to explain how and why all human cognition depends on the body for Leibniz. I will show that there are three types of dependence: (a) the body is needed in order to supply materials, or content, for thinking; (b) the body is needed in order to give us the opportunity for the discovery of innate ideas; and (c) the body is needed in order to provide sensory notions as vehicles of thought. I will examine the first

two types of dependence in Section 3 and the third type in Section 4. The third type is intimately connected to the faculty of the imagination, which supplies the sensory vehicles of thought. Hence, Section 4 will also examine Leibniz's account of that faculty and its operations. Before doing any of this, however, I will address the elephant in the room: Leibniz's claim that mind and body do not interact at all, metaphysically speaking. The correspondence between mind and body is merely a matter of what he calls "pre-established harmony." At first glance, this Leibnizian doctrine may suggest a radical disembodiment of all human cognition. Yet, I will argue in Section 2 that this is not the case and that, quite to the contrary, pre-established harmony requires that cognition is embodied in one important sense.

Let me mention two important caveats. First, my chapter predominantly focuses on Leibniz's mature or monadological writings, that is, texts composed from the mid-1690s onward. This focus is not intended to suggest that Leibniz changed his mind concerning the embodiment of human cognition—in fact, I will cite some evidence that Leibniz already embraced such embodiment in the 1670s. Yet, Leibniz's account of the nature of mind and body did change significantly over his long career, which complicates the story I want to tell about embodiment. To make things manageable, I will mainly explore Leibniz's views on embodiment within the monadological framework, with only a few references to earlier texts. My second caveat concerns the types of cognition that this chapter considers. I will not say much about unconscious perceptions, that is, about the least perfect type of Leibnizian mental representation. Unconscious perceptions are embodied in one of the ways that I consider in this chapter: like all mental states, they perfectly correspond to bodily states and can be ideally caused by bodies. Yet, my primary focus here are intellectual perceptions—the kinds of thought that Cartesians would consider to be independent of the body. When I talk about cognition or thinking in the remainder of the chapter, I refer to this more demanding type of cognition.[3]

2. Pre-established Harmony and the Embodiment of Cognition

Leibniz famously holds that created substances (or monads) do not interact, metaphysically speaking; all non-miraculous states arise in them spontaneously, from their own depths. For Leibniz, these two doctrines—that is, the doctrine that created substances do not interact and that all states arise in them spontaneously—are two sides of the same coin. Let us call this pair of doctrines the "spontaneity thesis."[4] Because of the spontaneity thesis, there is a sense in which your body does not have any causal influence on your mind, or vice versa. After all, your mind is a monad and your body consists of, or is grounded in, further monads;

none of these monads interact with each other, in metaphysical strictness. All mental states arise in your mind spontaneously, without depending causally on the body. If God had created just your mind, without your body, you would not notice any difference; your mental states would be intrinsically indistinguishable from your mental states in the actual world. As Leibniz sometimes puts it, each created substance is like a "world apart."[5] Hence, it may seem that cognition cannot possibly depend on the body.

Yet, it would be premature to conclude that because of Leibniz's spontaneity thesis, the body does not have anything to do with our cognitive lives. After all, Leibniz holds that there is a pre-established harmony between mind and body (e.g., M §§78f.). Even though they do not interact with each other metaphysically speaking, they each unfold as if they interacted. When someone pinches your arm, you feel pain; when you decide to raise your arm, your arm goes up. God arranged things in such a way that there is a perfect correspondence between your mind and your body, even though there is no direct causal interaction.

Leibniz furthermore claims that each monad mirrors the entire universe by expressing its own body (see e.g., letter to De Volder, June 20, 1703, LDV 267). Monads perceive their own bodies more distinctly than other bodies, and there is a complete correspondence between physical and mental states. For Leibniz, each of a monad's mental states—even the most abstract thought—has a correlate state in its body. In fact, the special relation between a monad and its body consists precisely in this special correspondence (NE 116; G 4:495/WF 49). Textual evidence for this correspondence abounds. For instance, Leibniz's spokesperson says in the *New Essays* that "there is always a perfect correspondence between the body and the soul. . . . The body has counterparts of all the thoughts of the soul, rational or otherwise" (NE 116). Or, as Leibniz writes in one of his notes on Bayle, "the body is so constructed that the soul never makes decisions to which bodily movements don't correspond, even the most abstract reasonings having their place there" (G 4:559/PT 246). Finally, in a very explicit passage from his 'Reflections on the Doctrine of the Universal Spirit,' Leibniz summarizes his views as follows: "I have established a perfect parallelism between what happens in the soul and what takes place in matter" (G 6:533/L 556). Mind and body perfectly correspond to each other.

Thus, the doctrine of pre-established harmony gives us one sense in which all cognition is embodied: there is a perfect correspondence between mental and physical states. Each mental state, no matter how abstract, has a correlate state in the body. The converse is also the case, however: each bodily state has a correlate state in the mind (see e.g., NE 116). Hence, this correspondence is symmetrical; it does not show that cognition *depends* (asymmetrically) on the body. Pre-established harmony rules out mental states without corresponding bodily states, but it also rules out bodily states without corresponding mental states.[6]

Yet, there is a further aspect of pre-established harmony that provides us with asymmetrical dependence relations between mind and body: Leibniz claims that there is a sense in which we can *explain* some of the things that happen in the mind with reference to the body, and some of the things that happen in the body with reference to the mind. There is a sense in which it is true that you feel pain *because* someone pinched your arm, or that the pinch *causes* your pain. Leibniz sometimes refers to this as 'ideal influence' (M §51; T §66). It comes down to this: God chose to create a mind that feels pain at that particular time *because* he wanted to create the person who pinches your arm. More generally, any imperfection or passive state that is included in God's plan is included because of a corresponding perfection or active state.[7] Actions and passions perfectly correspond to each other, and the actions are always the explanations for the corresponding passions, in the order of divine ideas (M §§50–52; T §66; NE 211).[8] Hence, despite the spontaneity thesis, there is an important sense in which certain features of our mental lives—in particular, imperfections in our mental lives—can be explained by our embodiment. Leibniz even describes this explanatory relation as a dependence relation (T §66; M §51; NE 177). Thus, Leibniz acknowledges an asymmetrical dependence of imperfections on the corresponding perfections.

The notion of ideal influence, or ideal dependence, furthermore allows Leibniz to say that sense perceptions are caused by their objects. When you smell a rose, the perception of the rose's fragrance is caused—or ideally explained—by the rose. Likewise, when you hear your alarm clock, your perception of the sound is caused by the clock, whose vibrations are transmitted through the air. These are paradigmatic examples of ideal influence: you have particular perceptions *because* of these external objects. God created someone like you who has those perceptions because he wanted to create those objects; the alarm clock and the rose are active in this respect, whereas you are passive. Hence, some mental states—namely, sense perceptions—depend on external things in the ideal sense.

Leibniz's account of the ideal interaction between mind and body also allows him to say that having bodily organs enables our minds to attain more distinct perceptions of our environment.[9] After all, pre-established harmony requires that a soul's sensory perceptions are only as good as its bodily organs; each soul perceives "things from the outside . . . confusedly or distinctly according to the organs which accompany it" (letter to Electress Sophie, February 6, 1706, G 7:566/SLT 82). For example, Leibniz can say that our eyes enable us to perceive quite distinctly the objects in our immediate surroundings—without eyes, we would not perceive our surroundings distinctly.[10] In that sense, it is accurate to say that we need eyes in order to have distinct visual perceptions of our environment, or that our visual perception depends on our bodily organs. Hence, our sense perceptions depend on our own bodies, and not only on the external things that we perceive.

It may seem that this ideal influence is just a metaphorical way of speaking and should not be viewed as a genuine dependence or a genuine causal relation. And in a way, that is true: metaphysically speaking, there is no causal interaction among created monads and the dependence is at best indirect, via a dependence of certain aspects of God's plan on other aspects. Yet, we should also remember that Leibniz's system has different levels and that there is an important sense in which explanations at the phenomenal level are genuine explanations for him, even though they are not fundamental explanations.[11] Leibniz often makes claims about the causal interdependence of things at the phenomenal level;[12] he clearly considers those claims to be true, even though, metaphysically speaking, there are no causal relations among those things. The causal influence is merely ideal, at the fundamental level.

A closely related worry is this: it may seem that our sensory perceptions do not depend on actual embodiment; they merely depend on the perception of embodiment. We do not actually need to have bodies or bodily organs in order to sense; it is enough that we perceive ourselves as having bodies. This is correct, in one important sense: it would be possible for your soul to have perceptions intrinsically indistinguishable from sensory perceptions even if it did not have a body but merely perceived itself as having a body. Yet, for Leibniz, statements about possibility and impossibility—like the previous sentence—can mean multiple things. Something can be metaphysically (or logically) possible, but physically or morally impossible. Metaphysical possibility is a very low bar, because it requires only freedom from logical contradiction: anything that does not imply a logical contradiction is metaphysically possible for Leibniz (T §282). The Principle of Contradiction thus determines what is and what is not metaphysically possible. For instance, it is metaphysically possible for God to do something other than the best (T §234). In contrast, moral and physical possibility are determined, to simplify a little, by the Principle of Sufficient Reason or the "Principle of Wisdom and Goodness" (T §174).[13] For instance, it is morally impossible for God to do what is not best (T §234).

In many contexts, Leibniz is interested only in whether something is physically and morally possible. This, very roughly, means that he is interested in what can occur in a world created by a wise God who would only create collections of substances that obey the Principle of Sufficient Reason and which consequently harmonize.[14] Hence, Leibniz sometimes calls things "impossible" or "absurd" because they are incompatible with God's wisdom or the Principle of Sufficient Reason, even though they are metaphysically possible.[15] In this sense, it is impossible for a human mind to have sensory perceptions without corresponding bodily states. God would only create a harmonious world—and hence, he would only allow imperfections insofar as there are corresponding perfections.

In short, saying that certain mental states depend on the body does not mean that it is absolutely or metaphysically impossible to have those

mental states without the body. It merely means that the Principle of Sufficient Reason, and harmony, rule out the occurrence of those mental states without the body. I believe that this is precisely the sense in which disembodied human sense perception is impossible for Leibniz; this is the sense in which human minds need bodies in order to sense.

So far, we have seen that sense perceptions depend on the body for Leibniz. Yet, it may seem that we do not need the body to explain the most perfect instances of human cognition. Why would you need your body in order to think abstract thoughts or in order to think about immaterial entities, which you do not perceive with your sense organs? When you realize that $1 + 1 = 2$ or that God exists or when you have some other distinct, non-sensory thought, why would your cognition depend on your body in any way? Of course the body mirrors those thoughts, as required by pre-established harmony. It is not at all obvious, however, why the mind would depend on the body for those types of thoughts. After all, as we already saw, ideal influence is asymmetrical: imperfections depend on perfections, not the other way around. Intellectual thoughts appear to be more perfect than the physical states that mirror them—in other words, the physical states seem to depend on the mental states in these cases, rather than the other way around.

Yet, there are passages in which Leibniz states explicitly that created minds require the body, or the bodily sense organs, for all cognition. As already seen, he writes to Sophie Charlotte that "the external senses are necessary for our thinking, and . . . if we did not have any, we would not think" (A 1.21.344/AG 191). Along similar lines, Leibniz's spokesperson says in the *New Essays* that "created minds and souls never lack organs and never lack sensations, as they cannot reason without symbols" (NE 212). In fact, he goes on to criticize people who

> have wanted to maintain a complete separation [of body from soul], and to endow the separated soul with thought-processes which could not be explained by anything we know, and which would be remote not only from our present experience but also—and far more important—from the general order of things.
>
> (NE 212; similarly M §14; M §72)

In other words, he insists that a separated soul would not be able to think.[16] These passages suggest that all human cognition, even the most abstract or intellectual, depends on the body.

In the next two sections, I will provide three explanations for why Leibniz might say that we need the senses in order to think abstract thoughts and in order to think about immaterial entities. In Section 3, I show that we need the senses in order to have materials for thinking and in order to get opportunities for the discovery of innate ideas. In Section 4, I show that we need the senses in order to have vehicles for abstract, intellectual

thought; without sensory vehicles, we would not be able to think such thoughts.

3. The Body as Providing Material and Opportunities for Thinking

Part of the reason why we need the body in order to think appears to be that without the external senses, we would not have very much to think about. Leibniz seems to give just that answer in his letter to Sophie Charlotte: our senses, he says there, "provide us material for reasoning, and we never have thoughts so abstract that something from the senses is not intermixed with them" (A 1.21.344/AG 191). In other words, even our most abstract thoughts depend on the senses because these thoughts contain some sensory elements. To see why, it is important to note that Leibniz agrees to a large extent with Locke regarding the sensory origin of our ideas. The only objects of our intellects that we did not originally receive from the senses, Leibniz sometimes says, are "the soul itself and its states" (NE 211).[17] Without sense perceptions, then, our mental lives would indeed be impoverished because most of the things we in fact think about would be unavailable to us.

Just how impoverished would our abstract cognition be without input from the senses? One thing we would lack is an awareness of general ideas that we derive by abstracting from sense perceptions. Examples include our ideas of colors (A 1.21.338/AG 187; A 6.4.586/AG 24) and our idea of human nature (NE 290). Yet, this explanation does not apply to some articles of knowledge, such as our knowledge of ourselves and of our internal actions, as well as everything we can derive from these. As Leibniz puts it in 'On the Doctrine of a Universal Spirit' in 1702, "there are in truth certain materials of thought or objects of the understanding in the soul which have not been furnished by the external senses, namely, the soul itself and its functions" (G 6:532/L 556). Our awareness of those objects may depend on internal sense—on something like reflection, or introspection—but not on the external senses. Thus, there is an important type of cognition that does not receive its material from the body. Indeed, this type of cognition is not limited to thoughts about the self; Leibniz holds that we can derive a number of notions from our knowledge of ourselves, including the notions of substance, cause, effect, action, and similarity (letter to Sophie Charlotte, A 1.21.339/AG 188; similarly NE 111). Why then would we require the senses for those kinds of thoughts?

The *New Essays* contain one explanation of the role of the external senses in human reasoning about truths that we find within ourselves:

> it cannot be denied that the senses are inadequate to show [the necessity of necessary truths], and that therefore the mind has a disposition . . . to draw them from its own depths; though the senses are

> necessary to give the mind the opportunity and the attention for this, and to direct it towards certain necessary truths rather than others. (NE 80)

What might Leibniz mean by saying that the senses provide the mind with "the opportunity and the attention" for discovering necessary truths within itself? One plausible possibility is that we can only discover these necessary truths by engaging in sense perception and then reflecting on that mental act.[18] Leibniz appears to be suggesting this in his letter to Sophie Charlotte: "The thought of *myself*, who perceives sensible objects, and the thought of the action of mine that results from it, adds something to the objects of the senses" (A 1.21.339/AG 188). The suggestion here seems to be that in order to form the notion of myself, I must be aware of myself as perceiving sensible objects. Thus, I can only form the notion of myself insofar as I possess sense perceptions. This interpretation is confirmed by another passage from the *New Essays*: "The senses provide us with materials for reflections: we could not think even about thought if we did not think about something else, i.e. about the particular facts which the senses provide" (NE 212). Without sense perceptions, we would not have mental states on which we can reflect in order to discover within ourselves necessary truths and notions like "self" and "thought." Hence, we need the body even for those types of cognition.

What we have seen so far also helps us understand how the dependence of cognition on the body is compatible with Leibniz's doctrine of innate ideas—ideas which "could not come to us from the senses" (NE 74). To see this, note that, for Leibniz, innate ideas are mental dispositions, or natural tendencies, for thinking certain thoughts. In the preface to the *New Essays*, he states this unequivocally: "This is how ideas and truths are innate in us—as inclinations, dispositions, tendencies, or natural potentialities, and not as actions" (NE 52). In many cases, activating or manifesting these dispositions requires reflecting or "attending carefully and methodically to what is already in our minds" (NE 77). Hence, these ideas become activated precisely through the processes we discussed earlier. And those processes, as seen, depend on sense perception. As a result, it makes sense that Leibniz sometimes claims that even though innate ideas or innate truths do not themselves depend on the senses, "it would never occur to us to think of them" without the senses (NE 50).[19] In other words, even though the content of innate ideas does not come from the senses, the senses are necessary in order for those ideas—which are dispositions—to become thoughts.[20]

4. The Role of the Imagination and Symbols

We have already uncovered two ways in which Leibnizian cognition requires the body: without the body, we would have only very little to

think about and we would not have the opportunity for finding necessary truths, or innate ideas, within ourselves. Yet, there is a further dependence of human cognition on the body—a dependence having to do with the role that the imagination and symbols play in human cognition. In the *New Essays*, Leibniz's spokesperson notes, "we cannot have abstract thoughts which have no need of something sensible, even if it be merely symbols such as the shapes of letters, or sounds" (NE 77). Along similar lines, he says later in the same text that "created minds and souls never lack organs and never lack sensations, as they cannot reason without symbols" (NE 212). These passages convey that human thinking, even very abstract reasoning, relies heavily on symbols and other sensible objects. As we will soon see, this means that all human thinking involves the imagination, which is the repository for sensible and spatial notions, including symbols; the ultimate origin of these notions are sense perceptions.

4.1 The Faculty of the Imagination

Let us examine Leibniz's theory of the imagination and its role in abstract thought.[21] In a table of definitions from the early 1700s, Leibniz defines "imagination" as "a thought [*cognitio*] together with an image of extension or figure" (C 491).[22] This is, of course, not a definition of the *faculty* of the imagination, but rather of an *act* of imagining. Yet, this does suggest that the imagination is tied intimately to spatial and geometrical representations: all contents of the imagination have a spatial or geometrical component. Elsewhere, Leibniz provides a broader definition of the imagination that does not explicitly limit it to spatial representations: he describes it as a mental faculty that collects the perceptions and notions of the bodily senses. More specifically, it is "an *internal sense* in which the perceptions of [the] different external senses are found united [and] which contains both the *notions of the particular senses* . . . and the *notions of the common sense*" (letter to Sophie Charlotte, A 1.21.339/AG 187). The common sense, in turn, contains notions that derive from more than one of the external senses, for instance the notions of numbers and shapes.[23]

Thus, the imagination contains notions that are supplied by at least one of the external senses. According to the first passage, these notions all have to do with extension and figure—or more precisely, they are image-like notions.[24] In contrast, the letter to Sophie Charlotte allows that non-imagistic notions deriving from the external senses could also be housed in the imagination—for example the notion of sweetness, if it is non-imagistic. The letter portrays the imagination as containing all sensory notions, some of which—such as the notions of sound, smell, or taste—do not appear to be spatial or image-like. That also applies to the notion of number, which is a notion of the common sense (A 1.21.338/

AG 187). In any case, what matters for the purposes of this chapter is that the imagination contains, and allows us to operate with, notions that are originally derived from the external senses.[25] A soul that has never sensed anything would be unable to use its imagination because the faculty would be completely empty. As a result, any type of cognition involving the imagination also depends partially on the external senses and hence on the body. If you are thinking of something—say, your neighbor—using a notion from the imagination, that thought depends on your body.

4.2 The Imagination's Role in Spatial and Geometrical Cognition

That cognition requires notions from the imagination is most evident in the case of spatial and geometrical reasoning.[26] After all, pure reflection on the mind and its actions does not provide us with spatial notions, according to Leibniz; those notions are acquired from sense perception. Hence, all spatial and geometrical reasoning involves the imagination. Bodies, lines, shapes, and space, in fact, are mere beings of the imagination for Leibniz ("Conversation of Philarete and Ariste," G 6:586/AG 263). Everything extended, including geometrical lines, figures and space itself are phenomenal and hence reside in the imagination. Thus, all cognition of spatial or geometrical objects depends on the body.

Admittedly, there are some passages that seemingly suggest otherwise. In the *New Essays*, for example, Leibniz's spokesperson at one point states that

> the whole of arithmetic and of geometry should be regarded as innate, and contained within us in an implicit way, so that we can find them within ourselves by attending carefully and methodically to what is already in our minds, without employing any truth learned through experience or through being handed on by other people. . . . So one could construct these sciences in one's study and even with one's eyes closed, without learning from sight or even from touch any of the needed truths.
>
> (NE 77)

Initially, this passage may appear to suggest that we do not need the imagination or the senses in order to do geometry; we can reason about geometry entirely a priori, based on our innate ideas.

Yet, when we look at the passage more closely, that is not so clear at all. It only talks about not needing "truths" that are received externally; it says nothing about images or spatial notions that are received externally. The distinction between notions and truths is important for Leibniz. He draws it, among other places, in the letter to Sophie Charlotte

from which I have already cited a few times: necessary truths—and in particular the "force of the demonstrations" of sciences like arithmetic, geometry, and mechanics—depend on the "natural light," and not the senses. Yet, in order to practice those sciences, we still need the senses "for having certain ideas of sensible things" (A 1.21.341/AG 189). Thus, these *truths* do not depend on the senses—after all, we can only derive contingent truths from the senses[27]—but some of the *ideas* or notions that are employed in demonstrations or expressions of those truths do depend on the senses. Or, to put it another way, these sciences do not depend on truths derived from the senses, even though they do depend on notions derived from the senses. For example, while the truth of Pythagoras' Theorem does not depend on the senses, the spatial notions that we need in order to cognize this theorem do depend on the senses.

In fact, my interpretation is supported by the continuation of the passage from the *New Essays* about arithmetic and geometry, which goes as follows:

> So one could construct these sciences in one's study and even with one's eyes closed . . . although it is true that if one had never seen or touched anything, one would not bring to mind the relevant ideas. For it is an admirable arrangement on the part of nature that we cannot have abstract thoughts which have no need of something sensible. . . . If sensible traces were not required, the pre-established harmony between body and soul . . . would not obtain. But that does not preclude the mind's obtaining necessary truths from within itself. (NE 77)

Hence, in the end, Leibniz's view appears to be that while geometric truths are innate, we would not be able to access or think about those truths without having had some sense perception. Sciences like geometry would not be available to us without something from the senses because we think them imagistically, using spatial notions that we originally received from our external senses.

4.3 The Imagination's Role in Non-Spatial Cognition

The previous subsection explained why we need the imagination for spatial or geometrical cognition. Yet, it may seem less clear why non-spatial cognition would require the imagination or input from the senses. For instance, why would I need the senses in order to think about my soul, about God, or about arithmetic and logic? Let me start with arithmetic, which is the easiest case because Leibniz claims that it depends on the imagination in much the same way that geometry does. He holds after all that the notion of number is derived from sensation—more specifically, it is derived from the perception of sounds, colors, or tactile qualities—and

is a notion of the common sense (letter to Sophie Charlotte, A 1.21.338/AG 187). The notion of number and other notions of the common sense are "subject to imagination," and they "are the objects of the *mathematical sciences, namely* arithmetic and geometry" (A 1.21.339/AG 187). Hence, even though the subject matter of arithmetic is not spatial, it still depends on a notion that humans must derive from the external senses, namely the notion of number. Without sense perceptions, we would be unable to do arithmetic.

Other types of non-spatial cognition are more difficult to connect to sensory notions. Leibniz acknowledges, after all, that "Spirits, souls, and simple substances or monads in general cannot be comprehended by the senses and the imagination, because they lack parts" (letter to Bierling, August 12, 1711, G 7:501). In a letter to Countess Elizabeth from 1678, he says this specifically about God (A 2.1.663/AG 237). Moreover, he claims that metaphysical or intelligible notions such as being and truth are "above the imagination" (letter to Sophie Charlotte, A 1.21.340/AG 188) and are "found in this I and in the understanding, rather than in the external senses" (A 1.21.341/AG 189). If that is true, why would Leibniz say, as we saw earlier, that the senses are required for all human cognition? Is it merely because we would lack the opportunity to think about these things, or is there a more direct dependence?

The answer, it seems, is the following: even though we do not acquire our knowledge of these items from our sense perception, we are unable to think about them without the imagination. Hence, our abstract, non-spatial cognition depends on sense perception. The reason why we need the imagination to think about those items becomes clear in a number of passages. For example, Leibniz writes to Samuel Masson in 1716 that "there are always characters [*caracteres*] in the imagination that correspond to the most abstract thoughts—witness arithmetic and algebra" (G 6:626/AG 228). What he has in mind here appear to be the symbols that we use in abstract cognition, such as plus signs and numerals. Along similar lines, he claims in his notes on Bayle that "even the most abstract reasonings [have] their place [in the body], through the symbols which represent them to the imagination" (G 4:559/PT 246).[28] Likewise, he says in his "Supplement to the Explanation of the New System" (1698) that "the body reacts to our abstract thoughts also . . . even the most abstract thoughts always employ *signs* which affect the imagination" (G 4:574/WF 140). And, to mention just one final passage, Leibniz's spokesperson claims in the *New Essays* that "we cannot have abstract thoughts which have no need of something sensible, even if it be merely symbols such as the shapes of letters, or sounds" (NE 77).[29]

Leibniz's point appears to be that we can only think abstract notions by somehow visualizing them, or employing symbols or words, which Leibniz in turn associates with the imagination.[30] Even when the content is something non-spatial or merely intelligible, the vehicle is spatial

or sensible.[31] But why would symbols or words have to come from the imagination, and indirectly from the senses? I do not know of any passage in which Leibniz spells this out, but it strikes me as plausible that symbols and words are the work of the imagination because they are sounds or spatial entities that we have either acquired from others or that we have built from spatial and sonic notions that we received from the senses. For example, when I think of the number 2, I can do so by imagining the sound of the word 'two,' the symbol '2', the written word 'two', or perhaps picturing two dots or two lines.[32] All of these vehicles of thought are sensory notions.

It is true that Leibniz sometimes talks as if some human thought did not involve anything sensory. In one very interesting passage from the *New Essays*, his spokesperson says:

> The neglect of things that are truly good arises largely from the fact that, on topics and in circumstances where our senses are not much engaged, our thoughts are for the most part what we might call "blind"—in Latin I call them *cogitationes caecae*. I mean that they are empty of perception and sensibility.
>
> (NE 185)

Here, it sounds as if we do sometimes think without relying in any way on material from the senses, employing thoughts that are entirely "empty of perception and sensibility." Moreover, he says later in the same text that "words provide the means for remembering abstract thoughts" (NE 275), which suggests that there are pure, non-verbal abstract ideas that we can remember with the aid of words.[33]

Yet, I do not think that what Leibniz is saying in these passages is that we are capable of non-symbolic, non-verbal, non-imagistic thought. When we look at the continuation of the first passage, it becomes clear that the "blind thoughts" Leibniz is discussing there are symbolic or verbal; in fact, that is the root of the problem with those thoughts. The passage continues:

> [blind thoughts] consist in the wholly unaided use of symbols, as happens with those who calculate algebraically with only intermittent attention to the geometrical figures which are being dealt with. Words ordinarily do the same thing, in this respect, as do the symbols of arithmetic and algebra. We often reason in words, with the object itself virtually absent from our mind. . . . [T]his is how people usually think about God, virtue, happiness; they speak and reason without explicit ideas—it is not that they cannot have the ideas, for they are there in their minds, but that they do not take the trouble to carry the analysis through.
>
> (NE 185f.)

Leibniz here warns against the "wholly unaided use of symbols," encouraging us to move away from abstract and arbitrary symbols, and toward perceptions that are less abstract. In other words, he appears to be recommending that we move from a very high level of abstraction to a more concrete level. In some cases, this more concrete level will be an imagistic representation of the thing that we are thinking about, for instance a geometric shape in algebra or a mental image of my neighbor's face. In other cases, that more concrete level might still involve the use of symbols because we cannot represent the object non-symbolically—our thought of God is arguably an example of this. In that case, the advice might be to do more than merely think of the word "God" and to instead call to mind some divine attributes. As a result, this passage does not contain evidence for the possibility of non-symbolic abstract thought, or of thought that does not involve the imagination.[34]

Something very similar is suggested by the context of the other passage that I quoted earlier:

> [language] enables man to reason to himself, both because words provide the means for remembering abstract thoughts and because of the usefulness of symbols and blind thoughts in reasoning, since it would take too long to lay everything out and always replace terms by definitions.
>
> (NE 275)

Here, Leibniz claims that one way to make our thoughts less "blind" is to analyze them and think of the definitions of the terms we are using. That of course simply means moving from one type of symbolic or linguistic representation to another, more concrete or more detailed one. Another way to make our thoughts less "blind," as seen earlier, is to move from arbitrary symbols to non-arbitrary images of the object of the thought, as in geometry. Leibniz does not seem to be suggesting in either passage that we ought to, or are able to, move beyond the imagination or beyond sensible notions entirely.

Moreover, Leibniz's claim that "words provide the means for remembering abstract thoughts" (NE 275) does not need to be read as saying that those abstract thoughts are entirely non-symbolic or non-linguistic. The abstract thoughts might themselves be symbolic, but they might be so complex that we can only remember them by using words as convenient shortcuts. The textual evidence that we cannot think abstractly without the aid of symbols or images is so strong—even in the *New Essays* themselves—that this is the overall most plausible way to read this passage.

The same strategy works for another famous passage that may initially seem to contradict my interpretation. This passage is from the middle-period text "Meditations on Knowledge, Truth, and Ideas" (1684). In that text, Leibniz first introduces the term "distinct" for clear notions

or cognitions whose individual marks—that is, that which allows one to distinguish a thing from all other things—are also understood. Some notions are indefinable, and a cognition of them is distinct because each such notion is "*primitive*, or its own mark" (A 6.4.586f./AG 24). Next, he introduces the term "adequate" for notions that are distinct and all of whose individual marks are also distinct (A 6.4.587/AG 24).[35] Finally, and most importantly for our purposes, Leibniz distinguishes two types of adequate cognition: blind (or symbolic) and intuitive cognition (A 6.4.587f./AG 25).[36] He illustrates blind or symbolic cognition with an example from geometry: one often thinks about a chiliagon by just thinking of words like "side," "equality," and "thousandfoldness," but without explicitly having in mind the meanings of those words (A 6.4.587/AG 24f.). One knows their meaning, but does not consider it explicitly and clearly at the time; instead, one merely operates with the words. To put this slightly differently, such blind or symbolic cognition occurs when one does not clearly consider all of the components of a complex notion. In fact, if a notion has a lot of components, it is often not possible for us to consider all components at the same time (A 6.4.588/AG 25). In contrast, a cognition is intuitive when we do consider all of the components of the notion at the same time. It follows from this that "distinct primitive notions"—which do not have further components and are their own marks—can only be known intuitively (A 6.4.588/AG 25).

Leibniz's talk of intuitive cognition in the "Meditations" may seem to suggest that we can cognize certain objects without any symbols or other imagination-based vehicles. Yet, the solution I suggested for the passages from the *New Essays* also applies here. Consider, first, what intuitive cognition of a complex notion like 'chiliagon' would consist in, according to the "Meditations": it would consist in considering, at the same time, not just the names for all of the individual marks, but also their meanings or definitions. In other words, one would consider the complete analysis of the notion, down to its primitive component notions. Hence, the question becomes whether distinct cognition of primitive notions—which is by definition intuitive—relies in any way on notions from the imagination.[37] To answer that question, note that we do not have to read this text as denying that cognizing primitive notions requires symbols, words, or images. While Leibniz does call non-intuitive adequate cognition "symbolic," that does not mean that intuitive cognition is not symbolic at all. When he calls non-intuitive cognition "symbolic," he means something very specific: it is a cognition couched in symbols that stand for complex notions and which are not fully analyzed. In other words, these symbols are shortcuts that help us think about complex content without having to bother with the details. The text leaves open the possibility that rendering such a cognition intuitive means fully analyzing the complex notion, replacing all terms for complex notions with terms for the primitive component notions. Given the strong evidence from elsewhere that Leibniz

denies humans the capacity of thinking anything without using language, images, or symbols, that is precisely how I think we should read the "Meditations" passage.[38]

5. Conclusion

We have seen in this chapter that human cognition is embodied in a few different ways for Leibniz. There is a threefold asymmetrical dependence of human thoughts on the bodily senses: the senses provide materials for thinking, give us the opportunity for the discovery of innate ideas, and supply sensory notions as vehicles of thought. A human mind that has never had a body would not be able to think about sensory objects or about notions abstracted from sense perceptions. Similarly, it would not be able to activate its innate ideas, or find notions such as "self" and "cause" within itself. Moreover, it would not be able to think abstract or intellectual thoughts because it would lack the requisite vehicles for such thoughts. These types of thought require symbols, which are the work of the imagination and are built from sensory notions originating in sense perception. Thus, Leibniz holds that the body is enormously important for human cognition. His position on this issue is very close to the Aristotelian position.

Interestingly, the three explanations for the asymmetrical dependence of human cognition on the body appear to explain merely why we would not be able to think if we had never had sense perceptions. In other words, they do not appear to explain why Leibniz holds that human minds can never become disembodied. Once a mind has an imagination furnished with sensory notions and has activated its innate ideas, it may not appear to need its body any more. Yet, as we have also seen, Leibniz has another reason for denying the possibility of disembodied human thought. Divine wisdom requires that all created things harmonize with each other and this in turn requires that all mental states have correlate bodily states. Because this correlation is required, created minds cannot become disembodied, and would not be able to think in a disembodied state.[39]

Abbreviations[40]

Works by Leibniz

A *Sämtliche Schriften und Briefe*, edited by Deutsche Akademie der Wissenschaften. Darmstadt, Leipzig, Berlin: Akademie Verlag, 1923–. Cited by series, volume, page.

AG *Philosophical Essays*, edited and translated by Roger Ariew and Daniel Garber. Indianapolis: Hackett, 1989.

C *Opuscules et fragments inédits de Leibniz*, edited by Louis Couturat. Paris: F. Alcan, 1903.

G *Die philosophischen Schriften von Gottfried Wilhelm Leibniz*, 7 vols., edited by Carl Immanuel Gerhardt. Berlin: Weidmann, 1875–1890. Reprinted Hildesheim: Georg Olms, 1978.

GM *Leibnizens Mathematische Schriften*, 7 vols., edited by Carl Immanuel Gerhardt. Berlin: Asher, 1849–1863. Reprinted Hildesheim: Georg Olms, 1971.

L *Philosophical Papers and Letters*, edited and translated by Leroy Loemker. Dordrecht: Reidel, 1969.

LDB *The Leibniz-Des Bosses Correspondence*, edited and translated by Brandon Look and Donald Rutherford. New Haven: Yale University Press, 2007.

LDV *The Leibniz-De Volder Correspondence*, edited and translated by Paul Lodge. New Haven: Yale University Press, 2013.

M "Monadology" (1714). Cited by section as in G 6:607–623 and AG 213–225.

MP *Philosophical Writings*, edited and translated by Mary Morris and George H.R. Parkinson. London: J. M. Dent, 1973.

NE *New Essays on Human Understanding* (1704). Cited by page numbers from A.6.6; translation from *New Essays on Human Understanding*, edited and translated by Peter Remnant and Jonathan Bennett. New York: Cambridge University Press, 1996.

PNG "Principles of Nature and Grace, Based on Reason" (1714). Cited by section as in G 6:598–606 and AG 206–213.

PT *Philosophical Texts*, edited and translated by Roger Woolhouse and Richard Francks. New York: Oxford University Press, 1998.

SLT *The Shorter Leibniz Texts: A Collection of New Translations*, edited and translated by Ed. Lloyd Strickland. New York: Continuum, 2006.

T *Theodicy* (1710). Cited by section number as in G 6:102–365.

WF *Leibniz's "New System" and Associated Texts*, edited and translated by Roger Woolhouse and Richard Francks. New York: Oxford University Press, 1997.

Works by Other Authors

AT René Descartes, *Oeuvres de Descartes*, 11 vols., edited by Charles Adam and Paul Tannery. Paris: Vrin, 1996.

CSM René Descartes, *The Philosophical Writings of Descartes*, 2 vols., edited and translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch. Cambridge: Cambridge University Press, 1985.

E Baruch Spinoza, *Ethics*. In *The Collected Writings of Spinoza*, vol. 1, edited and translated by Edwin Curley. Princeton: Princeton University Press, 1985. Cited by part and proposition.

SCG Thomas Aquinas, *Summa contra gentiles*, edited by P. Marc et al. Turin: Marietti, 1961. Cited by book, chapter, and paragraph.

Search Nicolas Malebranche, *The Search after Truth*, edited and translated by Thomas M. Lennon and Paul J. Olscamp. New York: Cambridge University Press, 1997.

ST Thomas Aquinas, *Summa Theologiae*. In *Corpus Thomisticum: Sancti Thomae de Aquino Opera Omnia*, edited by Enrique Alarcon. www.corpusthomisticum.org/iopera.html. Cited by part, question, and article.

Notes

1. Admittedly, Aquinas holds that the human soul can think when it is disembodied. Yet, when disembodied, it is capable solely of a very different mode of cognition: it can think only about intelligible objects, with divine assistance, and in a confused way (see e.g. ST I, q89, art1, c. and ad3; art3, c.). Disembodied thinking is a highly unusual type of human cognition. During our earthly existence, all of our cognition is embodied in a strong sense.
2. I am simplifying a bit here; Descartes's views on the role of the body in human cognition are quite complicated, but this is not the place to explore them in depth.
3. I will also discuss sense perception, in Section 2.
4. For a much more detailed discussion of Leibniz's spontaneity thesis, see Jorati 2017b, 37–58.
5. See e.g. "Discourse on Metaphysics" §14, A 6.4.1550/AG 47; letter to Des Bosses, May 26, 1712, LDB 243.
6. By saying that pre-established harmony "rules out" certain things, I do not mean that these things are absolutely impossible. They are simply incompatible with pre-established harmony; a collection of substances that includes these things is ipso facto not harmonious. Leibniz would say that these things are hypothetically impossible, that is, that they are impossible on the hypothesis that the world is harmonious.
7. As Leibniz explains in the *Theodicy*, God antecedently wills only what is good, insofar as it is good (T §§22f.). He allows imperfections only insofar as they are required by pre-established harmony. As Leibniz puts it in a letter to Jaquelot from February 2, 1704: "where we are passive and imperfect, we have been adapted by God, in regulating the universal harmony, to other things" (G 3:465/WF 177).
8. For a more detailed discussion, see Jorati 2017b, 47ff.; Puryear 2010.
9. See e.g. PNG §4; M §25; NE 74.
10. For a discussion of the perceptions, and geometrical knowledge, of a person born blind, see NE 136ff.
11. For a helpful discussion of these levels and their status, see Jauernig 2008, 10f. For an argument that ideal causation is a genuine form of causation, see Puryear 2010.
12. For instance, he describes a moving body as the cause of motion in another body; see "Specimen Dynamicum," GM 6:238/AG 122; GM 6:242f./AG 126.
13. The difference between moral and physical necessity is interesting but need not concern us here. For a discussion of the distinction as well as a more

detailed explanation of what these types of necessity amount to, see Jorati 2017b, 127f. and 132ff.

14. For more on this, see Jorati 2017a, 916f. As I explain there, Leibniz not only talks that way when doing science, but also when doing metaphysics. In fact, he claims that this approach makes genuine metaphysics possible in the first place. Moreover, note that I hold that multiple possible collections of substances are harmonious, or internally obey the Principle of Sufficient Reason. See Jorati 2016.
15. See Jorati 2017a, 919f. For an in-depth discussion of divine wisdom and its relation to the Principle of Sufficient Reason, see Jorati 2016.
16. The claim that disembodied human thought is incompatible with the "general order of things" supports my earlier argument that Leibniz takes harmony, or divine wisdom, for granted when saying that we need the body in order to think.
17. See also "On the Doctrine of a Universal Spirit" [1702], G 6:532/L 556, and a letter to Sophie Charlotte, A 1.21.339/AG 188.
18. Here, Leibniz agrees with Spinoza (see E2P23); see also Garber's and Pécharman's chapters in this volume.
19. Interestingly, this may not ultimately be different from Descartes's views on innate ideas; see e.g. "Comments on a Certain Broadsheet," AT 8B:358f./CSM 1:303f.
20. Moreover, as we will see later, the senses are required as vehicles of thought for innate ideas. For a more detailed discussion of the ways in which we can be said to acquire concepts from external things even though they are innate, see Puryear 2008, 251–56. For further helpful discussions of Leibniz's doctrine of innate ideas, see McRae 1995, 188ff.; Jolley 1998, 132ff., 2005, 103ff.
21. For helpful discussions of Leibniz's theory of the human imagination, see Sepper 2005, 329–34; Leduc forthcoming.
22. See also "Definitiones Cogitationesque Metaphysicae" (1678–1681), where Leibniz defines "imagination" as "the perception of an image" (A 6.4.1394). In "De affectibus" (1679), he seems to understand the term much more broadly, defining it as "a simple cognition [*intellectio simplex*]" and identifies it with "conception [*conceptus*]" (A 6.4.1411f.). This appears to be a different usage of the term "imagination."
23. The notions of the common sense have a special status because unlike other sensory notions, they are distinct and are thus intelligible; hence, they can play important roles in mathematics and the natural sciences (A 1.21.339/AG 187f.). For more on the notion of number, see McRae 1995, 184, 188f.
24. This was a rather common way to understand the imagination. See e.g. Malebranche's definition, in *Search*, ch. 4. Leibniz wrote an excerpt of the *Search*, which includes a summary of this definition of the imagination (see A 6.4.1815). Yet, other definitions in the seventeenth century are broader, and Leibniz was aware of those definitions as well. For instance, in his excerpt of *Der güldene Griff* by Valentin Weigel (Weigel 1613), Leibniz writes in 1687 that the imagination "sees an absent thing, but is only of bodily things and therefore belongs to the eye of the flesh; it includes all sensation. It sees, hears, smells, tastes, and touches" (A 6.4.2666).
25. Leduc claims that for Leibniz the common sense and the imagination also contain non-sensory, mathematical notions (forthcoming, section 2). More specifically, he appears to interpret the letter to Sophie Charlotte (A 1.21.339/AG 187) as claiming that the notion of number is not a sensory notion. In contrast, I interpret that letter as claiming that the notion of number is a

sensory notion; Leibniz merely denies that the notion is associated with one sense modality in particular because we derive it from sight, touch, and hearing. We need the senses in order to acquire that notion; moreover, we need sensory notions as vehicles in order to think about numbers, as we will see in the next section.

26. For a helpful discussion of the role of the imagination in geometry and in any thinking about space, see De Risi 2016, 30n15, 2007, 572f., as well as Leduc forthcoming.
27. See NE 80 and letter to Sophie Charlotte, A 1.21.343/AG 191.
28. Leibniz appears to have been committed to this even in his early writings. In a dialogue from 1677, for instance, Leibniz argues for the claim that "it is always necessary to use some characters for thinking" (A 6.4.24/AG 271) and that "I never know, discover, or prove any truth without using words or other signs in my mind" (A 6.4.22/AG 270).
29. See also a letter to Jaquelot from 1704, "There is always something in our imagination corresponding to our ideas, even those of immaterial things, namely characters like those of arithmetic and algebra, and words" (G 3:466/WF 177).
30. Sepper nicely puts this into the form of a slogan: "no thinking without signs"—contrasted with the Aristotelian slogan "no thinking without phantasm" (Sepper 2005, 334). For a very helpful discussion of the different roles that symbols can play in human cognition, see Leduc 2014. I disagree with Leduc in one important respect, however: he argues that certain types of symbolization do not involve the imagination, or sensory notions, at all (2014, 65). In contrast, I interpret Leibniz as holding that symbolization always involves the imagination and sensory notions.
31. This is a crucial respect in which human cognition is different from divine cognition. God has no need for any of these aids, after all, since he knows the complete concepts and real definitions of everything, can operate with these infinitely complex ideas, and knows all truths immediately or intuitively (see e.g. NE 490).
32. Further evidence comes from a dialogue from 1677—the early period—in which we find the following exchange between Leibniz's apparent spokesperson ("A"), and his interlocutor ("B"): "B. . . . There can be thoughts without words. A. But not without some other signs. See whether you can do any arithmetic calculation without numerical signs, I ask. B. . . . I notice that I never know, discover, or prove any truth without using words or other signs in my mind." (A 6.4.22/AG 270). Towards the end of the dialogue, B again states that "it is always necessary to use some characters for thinking," and A agrees (A 6.4.24/AG 271).
33. See Leduc 2014, 57f. for an analysis of Leibnizian blind thoughts.
34. Leibniz does say that "generalized algebra or the art of symbols is a marvelous aid, in that it unburdens the imagination" (NE 488), but this presumably means only that we can replace very complicated images, such as complex geometric shapes, which are difficult to imagine, with very simple images, that is, with symbols.
35. Interestingly, he voices some doubt about whether humans have adequate cognition of anything, adding that "the knowledge of numbers certainly approaches it" (A 6.4.587/AG 24). He reiterates this doubt later in the same text (A 6.4.590/AG 26). In the *New Essays*, Leibniz seems more optimistic about the ability of humans to have intuitive cognition, though he also stresses how difficult it is (NE 369). He notes that "God has the privilege of having nothing but intuitive knowledge" (NE 490). One complication is

that Leibniz may be using the term "intuition" slightly differently in the *New Essays*, conforming to Locke's usage (see NE 361).

36. This appears to be precisely the distinction that we already saw in the *New Essays*, in the passages about blind thoughts (NE 185f., 275).
37. Plausibly, an example of such a primitive notion that we can cognize distinctly is the notion of the number one. And, if what I have argued earlier is correct, we can only think about this notion by using a word, symbol, sound, image, or some other sensory notion from the imagination.
38. As already mentioned, this evidence is not just from Leibniz's mature writings but also from early writings. Hence, it seems likely that Leibniz believed in the dependence of abstract cognition on the body throughout his career.
39. For enormously helpful comments at various stages of this project, I thank François Duchesneau, Paul Lodge, Richard Arthur, Colin Chamberlain, Christian Leduc, as well as the participants of the 2017 LSNA conference in Toronto, the Nature, Mind, and Action in Leibniz workshop in Turku, the Causation and Cognition in Early Modern Philosophy workshop in Berlin, and the Philosophy of Mind in the Early Modern Period workshop in Princeton.
40. Whenever I cite an English edition in the text, the translation is from the cited edition. In all other cases, translations are mine.

Literature

De Risi, Vincenzo. *Geometry and Monadology: Leibniz's Analysis Situs and Philosophy of Space*. Dordrecht: Springer, 2007.

———. *Leibniz on the Parallel Postulate and the Foundations of Geometry: The Unpublished Manuscripts*. Cham: Birkhäuser, 2016.

Jauernig, Anja. "Leibniz on Motion and the Equivalence of Hypotheses." *The Leibniz Review* 18 (2008): 1–40.

Jolley, Nicholas. *The Light of the Soul: Theories of Ideas in Leibniz, Malebranche, and Descartes*. Oxford: Oxford University Press, 1998.

———. *Leibniz*. London: Routledge, 2005.

Jorati, Julia. "Divine Faculties and the Puzzle of Incompossibility." In *Leibniz on Compossibility and Possible Worlds*, edited by Gregory Brown and Yual Chiek, 175–99. Dordrecht: Springer, 2016.

———. "The Contingency of Leibniz's Principle of the Identity of Indiscernibles." *Ergo* 4, no. 31 (2017a): 899–929.

———. *Leibniz on Causation and Agency*. Cambridge: Cambridge University Press, 2017b.

Leduc, Christian. "The Epistemological Functions of Symbolization in Leibniz's Universal Characteristic." *Foundations of Science* 19, no. 1 (2014): 53–68.

———. "Imagination and Reason in Leibniz." *Studies in History and Philosophy of Science*, forthcoming.

McRae, Robert. "The Theory of Knowledge." In *The Cambridge Companion to Leibniz*, edited by Nicholas Jolley, 176–98. Cambridge: Cambridge University Press, 1995.

Puryear, Stephen. "Leibniz über Begriffe und ihr Verhältnis zu den Sinnen." In *Sehen und Begreifen: Wahrnehmungstheorien in der Frühen Neuzeit*, edited by Dominik Perler and Markus Wild, 235–64. New York: de Gruyter, 2008.

———. "Monadic Interaction." *British Journal for the History of Philosophy* 18, no. 5 (2010): 763–96.

Sepper, Dennis L. "Spinoza, Leibniz, and the Rationalist Reconceptions of Imagination." In *A Companion to Rationalism*, edited by Alan Nelson, 322–42. Malden: Blackwell, 2005.

Weigel, Valentin. *Der güldene Griff: Alle Ding ohne Irrthumb zu erkennen, vielen Hochgelährten unbekandt und doch allen Menschen nothwendig zu wissen*. Krusicke: Halle, 1613.

13 John Sergeant and Antoine Le Grand on the Occasional Cause of Cognition

Han Thomas Adriaenssen

1. Introduction

Though mostly known by specialists nowadays, John Sergeant and Antoine Le Grand were prominent philosophers in seventeenth-century England. Le Grand was the author of a Cartesian *Institutio Philosophiae*, and towards the end of the century published an *Entire Body of Philosophy*, which outlined the Cartesian system in the format of a scholastic handbook.[1] According to contemporary historian Anthony Wood, Le Grand's work was received particularly well at the university of Cambridge (Wood 1692, 620), and it seems no exaggeration to say that Le Grand "can lay claim to being the most productive and influential follower of Descartes in England during the second half of the seventeenth century" (Hatfield 2013, 252).

For the most part of his career, Sergeant was best known as a defender of Catholic oral tradition against the Protestant claim that only the Bible can serve as the true rule of faith. In the later stages of his career, however, philosophical questions about ontology, cognition, and the extent of our knowledge became increasingly prominent themes in Sergeant's writings.[2] In a series of books published towards the end of the seventeenth century, Sergeant argued that the theory of cognition developed by Cartesians such as Le Grand was deeply problematic, and that in spite of Cartesian claims to the contrary, a broadly Aristotelian theory of cognition remained the most plausible option on the table.[3]

A dispute between two major representatives of the Aristotelian and Cartesian traditions of the seventeenth century, the debate between Sergeant and Le Grand has received surprisingly little attention in the existing literature. In this chapter, I will explore Sergeant's criticism of Le Grand's account of the causation of cognition. As we will see, Le Grand claims that "nervous motions" provide an occasion for the soul to form relevant ideas. According to Sergeant, this claim either leaves unanswered the fundamental question of how cognitive states are caused, or leads to a kind of occasionalism where the ideas we have at any given moment of

time are the result of a divine intervention. In the latter case, Le Grand's theory of cognition is open to a plethora of further criticisms. Most of these criticisms are metaphysical in nature, but as I will argue, Sergeant also has religious reasons to be concerned about this kind of view. As we will see, Sergeant believes that if our ideas become the result of divine intervention, the door is open to a dangerous form of "enthusiasm" or fanaticism in matters of faith.

The chapter proceeds as follows. Section 2 introduces Le Grand and his views on the causation of ideas. Section 3 turns to Sergeant, and outlines his reading of Le Grand. Section 4 details some of the metaphysical objections Sergeant raises against his opponent, while Section 5 explores the charge of enthusiasm levelled against Le Grand. Section 6 sketches the alternative account of cognition Sergeant proposes, and points out some limitations of this account.

2. Le Grand on the Causation of Cognition

In spite of its title and organization, Le Grand's *Entire Body* of Cartesian philosophy is not *just* a handbook of Cartesianism. In many ways, the work also reads as a "summa" of early modern science or natural philosophy. Throughout the work, findings and experiments of contemporary scholars receive short summaries, and are then woven into the thread of the overall Cartesian narrative. In his defense of organic preformation, for example, Le Grand harks back, not only to Malebranche, but also to Dutch anatomists such as Johan De Graaf, the discoverer of the ovarian follicles; the Dane Nicolas Stensen; and the Irish physician Bernard Connor.[4]

For his account of sense perception, too, Le Grand gratefully draws on some of the most recent scientific findings in the field. Take, for instance, the sense of touch, which according to Le Grand is the most common sense of all, in that all other modes of cognition can be described as so many ways of our body to make contact with other bodies. The most important recent contribution to our understanding of this general sense, according to Le Grand, was by the Italian microscopist, Marcello Malpighi, in his 1665 treatise *De externo tactus organo*.

There, Malpighi summarized some of the earlier experiments he had carried out on the tongues and lips of animals. In these organs he had detected dark spots, which under a microscope revealed themselves as pyramidal structures of nervous tissue. He interpreted these pyramidal structures as nerve endings functioning much in the way of taste buds. Now, in some of the most sensitive parts of these animals, Malpighi reported, similar nervous pyramids could be found. Thus, the delicate material of a horse's foot contained a structure of nerve endings that, according to Malpighi, served as tactile receptors much in the way in which the similar nerve endings in the tongue had served as taste

receptors. It was this texture of nerve endings that, according to Malpighi, was the real organ of touch:

> From these repeated experiments, I plausibly deduce that, just as the organ of taste is activated by the greater and wider buds observed in the tongue on another occasion . . . likewise from the rich texture of more and greater nerve endings, and the fact that they are found in those organs in which animals are most affected by tactile stimuli, but also in other regions where the sense of tact exercises its powers, it is sufficiently clear what the organ of touch consists in.[5]

As the nerve endings that constituted the organ of touch were stirred, this motion would be carried to the brain, which process Malpighi described by means of a Stoic analogy. According to the Stoics, the human soul was like an octopus, the principal part of which by means of its seven remaining arms reached out to the five external senses, the genital parts, and the vocal system. Malpighi denied that the soul was partitioned in this way, but did use the octopus image to describe how the brain was connected with the sensory organs by means of the nervous system:

> We can more reasonably say that the brain has the nature of an octopus, as the nervous extensions that function as long and extended arms that make external itches and motions known to it via the stimuli that affect them.[6]

Le Grand knew Malpighi's work on the organ of touch, and summarized it in his *Entire Body*:

> Our *Modern Anatomists* fix the Organ of *Feeling* either in the *Skin*, the whole *Substance* whereof is *Nervous*, or in some *Bodies* that lye between the *Skin* and the *Cuticle*, which with Malpighius they call the *Sinew*, or the *Nervous Nipples of the Skin*, which they take to be the primary and immediate *Organ* of the *Touch*, because these little *Nipples* or *Prominences* are found to be more in number, and larger in those parts of the *Body* that are endued with the most exquisite *Touch*, as the *Palm* of the *Hands*, and the *ends* of the *Fingers*, than in the other parts.
>
> (Le Grand 1694, 287)

Like Malpighi, Le Grand believes that the motion that stimulates the nerve endings at any given moment are communicated to the sense of touch. The Stoic imagery is replaced by the perhaps more familiar Cartesian image of the nervous system as a system of cords with a kind of cerebral bells attached to them, but the overall point remains the same:

> Which *nerves*, whenever they are somewhat forceably shaken, immediately draw the parts of the *Brain*, as when a *rope* is pull'd, the *Bell* which is at the end of it *sounds* immediately.
>
> (Le Grand 1694, 287)

The sounding of these bells functions as a signal to the soul, which resides in the brain, and "receives a *sense* of the thing which hath moved the *Nerves*" (Le Grand 1694, 287).

With this last sentence—"the soul receives a sense of the thing which hath moved the nerves"—Le Grand passes over what certainly is one of the most intricate parts of the puzzle of perception. How is that nervous stimuli lead to conscious states in the immaterial soul? According to one of the opening chapters of the *Entire Body*, motion in the nervous system serves as an "occasion" for the production of a relevant idea by the soul itself:

> It is certain that no Representations of Material things come to our *Mind*, save only occasionally; that is, forasmuch as the *Motions* made in our *Brains* (for nothing but *Motions* can affect our Senses) do give the *Soul* occasion of forming several Notions, which without them it would not do.
>
> (Le Grand 1694, 7)

Whenever we engage in sensory representation, then, nervous stimuli occasion the soul to cause a relevant effect. But how does that work, and what does it mean for nervous stimuli to "occasion" the production of a mental state?

3. Sergeant on Le Grand as an Occasionalist

According to Sergeant, for nervous stimuli to occasion a mental state cannot be for the stimuli to cause the state in any way. For as Le Grand himself had claimed in his *Dissertatio de ratione cognoscendi*, "every effect is similar to its cause."[7] Now Le Grand himself had little to say in the *Dissertatio* about just what kind of similarity is at stake here. But for Sergeant, it is clear that if effects are to resemble their causes, bodily states cannot be causes of ideas. The ideas of secondary qualities, by the Cartesians' own avowal, do not resemble anything in bodies, and in general, the ontological gap between states of the nervous system and states of the Cartesian soul is too deep for resemblance. Hence the question of what links a given pattern of motion in the nervous system to a certain state in the Cartesian mind remains open. As Sergeant puts it:

> [The Cartesians] do not want this occasion to be a cause of the idea, because the two are not at all alike. But he asserts that every effect is

> similar to its cause. Hence it remains to be found out what this occasion is, if not a kind of cause.[8]

So what is the relation between a certain pattern of motion in the nervous system A, and a given idea B? Sergeant briefly considers the possibility that the former might be a kind of "motivation" for the formation of the latter:

> So that we need to assume that the soul reasons as follows: I observe that I am now being stimulated by motion in the nerves. So I must not forget to exercise the faculty I have to form ideas, and form this or that idea.[9]

On this view, the soul as it were "reads off" the states of the nervous system, and then goes through something like the following inferential process:

i. The nervous system is in state A.
ii. If the nervous system is in state A, idea B needs to be formed.
iii. Idea B needs to be formed.

But Sergeant offers two objections to this view:

1. It is not at all clear why the mind would conclude that B needs to be formed given A. In the absence of any kind of similarity between A and B, it seems that any other idea could have been just as fitting a response to the occurrence of A.[10]
2. If the mind is to reason that B needs to be formed given the state the body is in, B features in its reasoning. Hence the soul must already possess B.[11]

Now if the soul already possesses B, it does not acquire B when it proceeds to form B. Now all by itself, this need not be a problem for Le Grand. It need not be a problem, because like Descartes, he is not committed to the view that all ideas are indeed acquired. In fact, Le Grand seems to hold that most of our ideas are in some sense innate. The ideas of color and smell are innate, because distal bodies do not have colors and smells as perceived by us that we could receive from them. Perfect geometrical figures are not to be found in the external world either, so our ideas of them, too, must have been innate with us rather than received from without. The ideas of mind and body are innate as well, and the same goes for abstract ideas such as true and good, which could not have been imprinted upon us by the motion of external bodies (Le Grand 1694, 328).[12]

Again like Descartes, Le Grand does not believe that innate ideas are actually occurrent from early childhood onwards. To say that an idea

is innate for Le Grand simply is to say that the mind has a disposition to come to entertain that idea.[13] And with this dispositional account of nativism in place, we can begin to see more clearly the force of the second line of criticism Sergeant levels against his opponent.

Suppose that B is not an innate idea. In that case, the soul does not possess B prior to forming B. Yet if the soul is to reason that forming B is fitting given the state the body is in, it needs to already possess B, and we have arrived at a contradiction with the initial assumption that B is not an innate idea. Now suppose that B is among the innate ideas. This means that, prior to the formation of B, the soul has a disposition, but not that B is in fact occurrent. Yet it seems that in order for the mind to reason that, given the state the body is in, B needs to be formed, it is not enough that B be dispositionally available to the soul. Indeed, if B is to feature in an inference like (i)–(iii) above, it seems that B would have to be occurrent, and thus we have arrived at a contradiction with the initial claim that B is innate in the innocent way in which Le Grand wants it to be innate. Whether or not B is among the innate ideas then, it seems that B needs to be occurrent even before it has been formed by the soul. And this indeed seems to put the cart in front of the horse.

Sergeant concludes that we still lack an account of how A leads to B. To speak of A as the "occasion" for the soul to form B simply is not enough:

> I admit that I do not know what this occasion contributes, or what it means.[14]

But if we have not been able to identify a causal nexus between A and B so far, Sergeant argues, it seems Le Grand will have to take recourse to God to supply the missing link. According to Le Grand, that a given pattern of motion leads to a certain idea,

> depends on the divine will only, just as it depends on the human will that this or that word signify this or that.[15]

God's will, in other words, is what connects A to the occurrence of B. But this claim stands in need of further interpretation.

On one reading, it says that God has subjected the soul to a law such that, if A occurs, the soul forms B. I will call this the nomological reading of the claim that God provides the missing link between A and B. On this account, there no longer is a question as to how the soul decides to produce B. It does so because it is subject to a law, and not because it somehow sees that forming B is fitting given the state the body is in. Also, it seems that laws can be obeyed even by devices that cannot represent these laws. A balance is subject to laws of nature it does not represent. Hence it seems that, in order for the soul to be subject to a law commanding the formation of B given A, it need not be able to represent that

law, and hence to possess B before it is entertained. At any rate, there no longer seems to be a need to postulate B as an occurrent idea prior to the formation of B.

On a second reading of the claim that God provides the link between A and B, God wills that B occur whenever A does. Since God brings about whatever he wills, this second reading says that at the occasion of the presence of A, God with an act of his will brings about B. I will call this the occasionalist reading of the claim that God provides the missing link between A and B. This occasionalist reading has the same advantages as the nomological reading. If God brings about the occurrence of B, the soul does not need to decide to produce B, and the question of how it would do this accordingly vanishes. Again, because the soul need not decide that producing B is fitting given the state the body is in, there is no need to postulate that B is somehow occurrent even before it is entertained.

Note that, as stated here, the two readings are not mutually exclusive. Indeed as stated above, the nomological reading leaves open what is perhaps the most important question, namely the question of just how the law that connects A and B is enacted. Now it seems that one answer here could be that, every time A occurs, God wills that B occurs. On this view, B is brought about by the will of God every time A occurs, which brings us back to what I have termed the occasionalist reading of the general claim that divine volition provides the missing link between A and B.

For Sergeant, it is clear that, if it is to do any work for Le Grand, this general claim needs to be read in an occasionalist key. For given an occasionalist reading, the general claim that divine volition provides the missing link between A and B identifies a causal agent that guarantees that B occurs whenever A does. Given an occasionalist reading, in other words, the general claim provides just what had been missing from Le Grand's account so far:

> Because the Cartesians say that these motions are entirely dissimilar to the resulting mental states, these motions are mere occasions rather than causes, so that we cannot perceive or cognize anything in particular . . . unless God steps in and repairs this interrupted chain of natural causes . . ., and does so each time we engage in any kind of cognition.[16]

Sergeant believes that there are many things wrong with this view, but before we look at what these things are, it is good first to ask whether Sergeant is being fair to Le Grand in reading him the way he does. In other words, are there good reasons to believe that, according to Le Grand, divine intervention is needed each time we get from nervous stimuli to entertaining an idea?

In his *Censura*, a reply to Sergeant, Le Grand has rather little to say on the issue, and limits himself to the following:

> It is the will of God that has connected body and soul in such a way that, on the occasion of the species . . . that are formed in the brain, the soul forms ideas.[17]

The language here, as in the *Dissertatio*, suggests that it is the soul that forms ideas in itself at the relevant moments, not the divine will. Even so, there are reasons to think Sergeant had a point when he held Le Grand to be committed to a structural divine intervention in the causation of our ideas.

To see this, it will be useful to briefly return to a discussion early on in the *Entire Body*. There, Le Grand offers what has come to be known as a "Continuous Creation Argument." On this argument, for God to conserve the things he has created, is for him to recreate them at each moment of time. Here is how Le Grand presents that argument:

> Besides, because the Parts of *time* have no necessary dependence on each other, neither doth it follow that because a *thing* is now, it will be the next Moment: Therefore to the end it may continue to *exist*, there must be some *Power*, which may each Moment reproduce it: but no such *Power* is in the *Creature*, and therefore there must be some *Being*, whose *Nature* includes *Existence*, and which is the *Cause* why the thing that hath existed hitherto, doth continue to do so.
>
> (Le Grand 1694, 73)

For my body to continue to exist between t_1 and t_2, an external power is needed to conserve it. But for that external power to conserve it, just is to recreate the body I had at t_1 at t_2. The same goes for my soul. There is no reason intrinsic to it or to the two moments of time at which it exists in virtue of which my soul will continue to exist between t_1 and t_2. Hence some external power is needed that conserves it, that is, reproduces my soul at t_2.

Now there are at least two ways of understanding this continuous creation. On the first, God continuously recreates substances, but modes are products of substances and the interaction between them. On the second, God recreates substances, but this time with all the modes that belong to them at any given moment. There are reasons to believe that Le Grand was committed to this second view.[18]

When God first creates a substance, he creates it in a certain way. When God first creates a substance, in other words, he creates it with certain modes:

> God is the Efficient Cause, not only of Substances, but also of their Modes.
>
> (Le Grand 1694, 72)

But if to conserve a substance is to create it anew, it seems that whenever God reiterates the creation of a substance in order to conserve it, he will again create it with certain modes. Hence it seems that, at each moment of time, the way a substance is modified is the result of a divine act of creation.

Le Grand is explicit that this holds true for material and immaterial substances alike. Thus in the following passage, we are told that the cognitive states that modify the immaterial substance of our souls are the direct products of the divine will:

> It is a mere prejudice of our Youth to imagine that the *Modes* of *Cogitation*, *Knowledge*, *Judgment*, *affections*, and other inward *Acts* of our *Mind* do less depend on the Divine Power, than the *Modes* of *Material* and *Bodily things*. Because whatever is not God, is of it self altogether nothing; neither can it exist but by his *will*.
>
> (Le Grand 1694, 72)

This holds true for the soul at the first instance of its existence. But again, if to conserve a substance just is to create it anew, it seems that the cognitive states that modify the soul at any moment of its existence will be the products of divine creation.

This is a strong view to hold indeed. For if all the modes of the soul are products of the divine will, our volitions, too, will be products of divine action. But if that is the case, it becomes hard to see in what sense our will can still be said to be free or undetermined. Le Grand is aware of this outcome, but it does not lead him to soften his view. Thus he is not tempted to say that the volitional modes of the soul are somehow the joint product of the divine will and the activity of the mind, but instead emphasizes that it is not in our power "to Will or Act anything, which is not preordained by God," and that "it is a difficult thing to reconcile the Divine Decree with the Liberty of Mans Will" (Le Grand 1694, 72).

In spite of Le Grand's non-committing language in the *Censura* then, there is reason to believe he held, or was at least committed to, the stronger view Sergeant ascribes to him, and according to which ideas, and cognitive states in general, are produced by the will of God, and formed by the soul in a loose sense at best. But what is it that Sergeant finds so problematic about this position? In the next section, we will see that, according to Sergeant, the continuous creation doctrine with its concomitant account of the origin of ideas leads not only to a series of metaphysical problems, but opens the gates to religious enthusiasm as well.

4. Metaphysical Problems

According to Sergeant, Le Grand is committed to the general view that, at any moment of time, a substance is in the state it is in because God

willed that it was in that state. His first objection to this position is that it does not sit comfortably with the divine attribute of perfection. It does not sit easily with the divine attribute of perfection, because a perfect engineer would have made a world that can sustain itself, and the parts of which can bring one another from one state to another. An engineer whose continuous intervention is needed to keep his device going once it is built would be but a poor engineer indeed:

> The Course of Nature is carry'd on by *Efficient* Causes and *Effects*, For since a First Cause being suppos'd who is *Infinitely Wise*, he Administers his Workmanship, the World, after *wisest* and *best* manner. . . . Nor can this be done, among an infinit variety of bodies, by any other means . . . but by making Effects *necessarily* follow from their Causes, since, if that were not, the Course of Nature would be at a stand, and need the Artificers hand at every turn to make it go on, which argues an Imperfection in the Workmanship it self.
>
> (Sergeant 1696, 274–75)

The second objection Sergeant raises is that the continuous divine intervention he finds in Le Grand strips created substances of the very features that identify them as the kind of creatures they are.[19] According to Sergeant, substances have causal powers to bring about effects proper to them. This is what identifies them as the kind of substances they are:

> Every Body in Nature, is constituted such a Part of it, or such a *Body* by the Aptness it has to perform its *Proper* or *Primary Operation*.
>
> (Sergeant 1700, 42)

Again, substances are distinct from one another to the extent that they are different agents, which play different causal roles. To make two substances distinct from one another, all that is needed is each of them be

> a *Distinct Part* of the Universe. And what makes it a *Distinct Agent* in Nature, does also make it a *Distinct Part* of the Universe, and that which fits it for a Distinct and Peculiar *Operation*, makes it a *Distinct* Natural *Agent*.
>
> (Sergeant 1700, 43–44)

On the view Sergeant finds in Le Grand, however, substances have no powers to bring about effects proper to them. They do not bring about effects in themselves, for at each moment of time, their being and the state they are in depends on the divine will. For the same reason, they do not bring about effects in other substances either. For their being and the state they are in, too, are the effect of the way God willed to intervene in the world.

But if substances are causal dummies that lack the power to bring about proper effects, they are deprived of the very features that, according to Sergeant, identify them and make them the sort of substances they are. Consider a fire, for instance.[20] According to Sergeant, fire brings about heat in other substances. This is in effect part of what makes it fire.[21] On the view he finds in Le Grand, however, fire does no such thing. God may use the presence of a fire as an occasion to bring about heat in other substances if he so wills, but fire lacks the power to bring about heat in other substances, or even to sustain its own heat. On the view Sergeant finds in Le Grand then, the causal power to heat that made a fire the kind of thing it was is removed from it, and outsourced to God.

The human soul, too, would seem to be deprived of just those features that make it the kind of being it is. According to Sergeant, the human soul has three proper operations.[22] The first is to form and entertain notions or concepts, the second is to combine these notions or concepts into judgments, and the third is to combine judgments into syllogisms. But on the view he finds in Le Grand, it does no such thing. The human soul does not go from entertaining a premise to entertaining a conclusion because it engages in an act of syllogizing. Rather, after it was in a state in which it represented a premise, God willed to recreate it in a state in which it represented a conclusion. The transition from entertaining a premise to entertaining a conclusion, then, is made by God, not by the soul. But if even the actions that would seem to be most proper to it are not actually carried out by the soul itself, it seems to end up deprived of the very features that identify it as a soul. In general, indeed, the account Sergeant finds in his opponent risks to make all created beings "good for nothing" and in doing so strips them of their identifying features. As Sergeant puts the point with regard to material substances in his *Metaphysicks*:

> Hence is seen in what consists the Metaphysical *Bonity or Goodness* of every Body . . . namely, That it is *Useful* for some Effect or other that proceeds form it as 'tis such an *Ens*; or for such an Operation as is Proper and Peculiar to it. Whence those *Cartesians* who deny Bodies to be *Causes* of any Effect in Nature . . . but only to be *Occasions*, which themselves say, are *No Causes*; and consequently do put them to have *No Operation*; do, by making them *Good for Nothing*; take away their Metaphysical *Bonity*; and *Bonum* being a Property of *Ens*, by consequence their *Entity* also.
>
> (Sergeant 1700, 42)

Finally, Sergeant objects to Le Grand that, if the divine will is responsible for the existence of all substances and the states they are in, the course of nature becomes exceedingly hard to predict. Claims to know how substances behave in the future are claims to know the divine will

and what it will want in the future. In one word, they are claims to divine revelation:

> It is not given to us to know anything about the divine will before the event in question has happened, except through a revelation.[23]

Now perhaps, Sergeant remarks, those Cartesians who claim the benefits of a vision in God that gives them access to the divine ideas would happily claim revelation in their prediction of natural events as well. But his own view is that this reliance on divine intervention and revelation is precisely what makes the Cartesian legacy such a dangerous thing.

5. The Charge of Enthusiasm

In his *Raillery Defeated by Calm Reason*, Sergeant tells us that he "writ Philosophy to maintain the Interest of the Christian Faith, and not out of the vain Motive of being held a meer Philosopher" (Sergeant 1699, 7). Apparently then, Sergeant believed that the Cartesian way of ideas amounted to a religious threat. Why?

As Dmitri Levitin (2010) has recently argued, part of what worried Sergeant, was the fact that deist thinkers such as Matthew Tindal were using the psychology of ideas in their arguments against tenets of faith such as the holy Trinity and the transubstantiation. Now it is true that Sergeant worried about the link between deism on the one hand and recent theories of ideas on the other. Indeed, he says as much in an autobiographical letter to the Duke of Perth (Sergeant 1816, 102–3). However, the theory of ideas that English deists such as Tindal were drawing on was Locke's rather than Descartes'. So what risk did the Cartesian way of ideas pose to religion, according to Sergeant?

A recurrent theme in Sergeant's anti-Cartesian writings is the worry that the Cartesian theory of ideas is conducive to "enthusiasm". Enthusiasm, in the seventeenth-century context, was a pejorative term often used to describe the attitude of men who in a structural way take their personal ideas and beliefs for products of divine inspiration. This attitude was regarded as dangerous. To call someone an enthusiast was to describe him as a self-proclaimed but false prophet, likely to put others on a road to religious heterodoxy.[24] The worry that the Cartesian theory of ideas would lead to enthusiasm was a worry that Sergeant shared with a number of other seventeenth-century critics of Descartes, including the Groningen professor Martin Schoock. According to Schoock, the Cartesian meditator revealed himself as an enthusiast when, building on his own clear and distinct ideas, he came to the conclusion that God himself existed in his mind:

> When the Cartesian discovers the God that exists in himself by means of an idea, why does he not also, like the Enthusiast, draw these

> conclusions? God is in me, and therefore I am in God, and therefore it is through God existing in me that I do what I do.[25]

In England, the same worry was voiced by the classical scholar Meric Casaubon. In 1654, Casaubon published an influential *Treatise Concerning Enthusiasme*, in which enthusiasm was defined as

> an extraordinary, transcendent, but natural fervency, or pregnancy of the soul, spirits, or brain, producing strange effects, apt to be mistaken for supernaturall.
>
> (Casaubon 1654, 17)

According to Casaubon, all men are vulnerable to this kind of fervency, but philosophers particularly so. The Cartesian meditator is a case in point here. According to Casaubon, the Cartesian truth rule, according to which clear and distinct ideas can be trusted, is just the kind of deep confidence in one's own ideas that is likely to produce unwarranted claims to revelation. And indeed, this is just what happens when the meditator reaches the conclusion that God himself has a special kind of being in his mind. This claim in the *Meditations* smacks of the kind of "mystical theology" that one often finds in enthusiasts.

Descartes' reputation as an enthusiast was further strengthened by the publication of Adrien Baillet's *Vie de Monsieur Descartes*. In this work, Baillet related the three dreams that Descartes reported to have had during his stay in Germany in 1619. Here is Baillet, in the English translation of 1693:

> He [Descartes] acquaints us, That on the Tenth of November 1619, laying himself down Brimm-full of Enthusiasm, and wholly posses'd with the thought of having found that day the Foundations of the wonderful Science, he had Three Dreams one presently after another; yet so extraordinary, as to make him Fancy that they were sent him from above.

Indeed, Baillet tells us that Descartes was so "warmed" with his enthusiasm, that "a Man would have been apt to have believed that he had been a little Crack-brain'd, or that he might have drank a Cup too much that Evening before he went to Bed" (Baillet 1693, 35–36). In works such as the *Method to Science*, Sergeant gratefully drew on these and similar passages in Baillet to frame Descartes as a mentally unstable enthusiast.

But Sergeant built his case for Cartesian enthusiasm on more than just a few biographical anecdotes from Baillet. Among other things, he reiterated the point already made by Schoock and Casaubon that, when Descartes builds on his own clear and distinct idea to discover a God

with objective being in his mind, he behaves like a typical enthusiast. But what is more important in the present context, is that according to Sergeant, enthusiasm is inherent in the Cartesian account of the causation of cognition one finds in authors such as Le Grand. Here is his argument. The Cartesians deny that distal bodies can make impressions of the soul. Hence they will naturally be tempted to say that, on the occasion of certain bodily states and motions in the nervous system, the soul brings forth the relevant ideas from its own resources. As Sergeant puts it in an address to his own soul:

> They will need endow thee with a Power to give *thy self* Knowledge, by thy producing *within* thy self, little Spiritual Mirrours, call'd *Ideas*.
>
> (Sergeant 1700, 98)

Now according to Sergeant, this view naturally leads to the self-congratulatory attitude typical of enthusiasm. For combined with the Cartesian truth rule, the view that ideas originate from the soul itself will instil a fundamental trust in the products of one's own mind.

But matters are even worse than this. For as we have seen above, the view that the soul will bring forth the relevant ideas on the occasion of certain bodily states, natural as it may come to the Cartesians, falters according to Sergeant. In the absence of a natural connection or resemblance between bodily states and ideas, the soul will not know which ideas to engender on which occasion. Moreover, there is no account of what natural *cause* leads the soul to produce an idea on the occasion of a given bodily state. As a result, Cartesians such as Le Grand resort to *supernatural* rather than natural causes. On the occasion of a given bodily state, that is, God intervenes to ensure the relevant idea is brought about. Thus God becomes the author of our cognitive lives. And it is precisely this attitude, Sergeant believes, that makes Cartesian psychology fundamentally akin to enthusiasm. The Cartesians, he writes in *Solid Philosophy*,

> are connaturally disposed by their Principles to be *Fanaticks in Philosophy*; and to entertain as wild Fancies, as the Deepest *Enthusiasts*.
>
> (Sergeant 1697, 378)

Indeed, exotic as Malebranche's Cartesianism may seem to many of us, according to Sergeant the vision in God did little more than unpack the enthusiasm that was inlaid in the Cartesian psychology, and its failure to explain how distal objects act on us to produce ideas that pertain to them. In Sergeant's own words: the Cartesian method leads to "*Enthusiasm*, and Enthusiasm to *Visions* and *Revelations*, so that *Malbranche* did but follow his Masters Example" (Sergeant 1697, preface).

6. Sergeant on the Mechanisms of Cognition

But if Cartesian accounts of the causation of cognition fail, what is the alternative? Sergeant develops his own position from within a hylomorphic framework. Bodies are compounds of matter and form, and for a subject to cognize a body, is for her soul to receive the form of that body without its matter. Just as a portion of matter becomes red when it receives the form redness, a subject becomes cognizant of redness when her soul receives this same form of redness.[26]

But how does the soul receive the forms of distal bodies? Sergeant's answer to this question builds on the theory of cognition of his friend Kenelm Digby. In his *Two Treatises* of 1644, Digby had argued that distal bodies emit minute bits of matter he called atoms. The emission of such atoms is what allows bodies to interact with other bodies in their environment, including the bodies of human beings. Thus, when atoms coming from a distal body attain our sensory organs, they affect the nerves that end in those organs. For example, when atoms coming from a red body attain the eye, they affect the optic nerve.

Because the optic nerve runs from the eye to the brain, the affection of the optic nerve by a distal object causes an affection of the brain by that object. This invites comparison with Descartes, but Digby stresses that his account differs in an important way. According to Descartes, when a distal body affects the optic nerve, what gets carried to the brain is the motion caused by that body in the optic nerve. According to Digby, however, what gets carried to the brain, are the very atoms that came from the distal body and affected the optic nerve. As he explains in the *Two Treatises*, the nerves are hollow tubes, and when a nerve is affected by atoms coming from a distal body, the wind of animal spirits that flows through the nerves will carry these atoms with them, and transport them to the brain:

> All which little bodies . . . when they are once gott in, must needes mingle themselves with the spirits they meet with in the nerve: and consequently, must goe along with them up to the braine.
>
> (Digby 1644, 278)

This difference with Descartes is important, Digby claims. After all, atoms are the kind of things that, once they reach the brain, can be stored in its ventricles. Thus Digby thinks he can account for the way in which information coming from external objects is retained in our cognitive system. Motion, by contrast, does not seem to be the kind of thing that can be stored in the brain after the distal body that brings it about has receded (Digby 1644, 282). Thus Descartes lacks a good account of the memory functions exercised by the brain.

When Digby says that atoms coming from distal bodies affect the brain, he has in mind a very specific part of the brain. Indeed, when

atoms are carried to the brain via the nerves that end in our sensory organs, they affect the *septum lucidum*: the thin membrane that separates the two lateral ventricles of the brain. Situated in the middle of the brain, Digby takes this membrane to be the centre of its cognitive activity, and describes it as the "seat of knowledge." Like Descartes' pineal gland, the seat of knowledge in Digby serves as the principal point of connection between body and soul.[27] It mediates between body and soul, in the sense that, when the seat of knowledge is affected by a distal body, the form of that body comes to configure, and exist in, the soul.[28]

Now, Digby was agnostic as to how exactly the seat of knowledge performed its function as an intermediary between body and soul. That is, he did not claim to know how an affection of the seat of knowledge by a distal body led to the reception of the form of that body by the soul:

> If you aske me how this cometh to passe? And by what artifice, bodies are thus spiritualized? I confesse I shall not be able to satisfy you: but must answere, that it is done, I know not how.
>
> (Digby 1644, 394)

Sergeant takes over the core of Digby's account of cognition. Distal bodies emit atoms or effluvia, which affect our sense organs and are carried to the brain via the hollow tubes that form the nervous system. Once they reach the central location Digby had called the seat of knowledge, the form of the distal body is received by the soul.

But where Digby had remained agnostic about the mechanisms underlying this last step, Sergeant tries to say a bit more. According to Sergeant, body and soul form a close union, but the union is nowhere closer than in the part Digby had identified as the seat of knowledge. This part in fact combines the natures of body and soul, and as such is neither wholly corporeal nor wholly spiritual:

> Therefore there must be some Chief *Corporeal* Part in Man, which is *immediately* united with the *Soul*, as the *Matter* with its *Form*, and, therefore, is Primarily *Corporeo-Spiritual*, and includes both Natures. Whence, when that Part is affected, after its peculiar Nature, *Corporeally*, the Soul is affected after *its* Nature, that is, *Spiritually*, or *Knowingly*.
>
> (Sergeant 1697, 66)

Because the seat of knowledge in a way unites in one the natures of body and soul, a change in this part of the brain and a change in the soul are but two sides of the same coin. Hence the affection of the seat of knowledge by atoms coming from a distal object cannot but go hand in hand with a parallel change in the soul, which thereby takes on the distal object's form.

Does this appeal to corporeo-spirituality suffice to explain how cerebral affections by a distal body lead to the reception of the form of that body by that soul? According to John Locke, the answer to that question is a firm no. Locke made detailed annotations in his personal copy of *Solid Philosophy*, and shortly after its account of how the seat of knowledge is supposed to mediate between body and soul, Locke wrote down the following remark:

> And now let the reader consider whether by reading what he finds from §6 hither he has not got a perfect clear knowledg how material things get into the imateriall soule.
>
> (in Sergeant 1697, 76)[29]

Sergeant has claimed that an affection of the brain by atoms coming from a distal object will lead to a parallel change in the soul, but according to Locke, he has offered no real explanation of how this parallel change comes about. Earlier on, Locke had already wondered what it could mean for the seat of knowledge, a part of the brain, to be corporeal and spiritual at the same time (in Sergeant 1697, 66).

A strict dualist who admits of two kinds of being only will have a hard time making sense of the idea that any being could somehow combine the natures of body and soul. With his notion of a seat of knowledge, Sergeant seems to envision a third way that does not fit a strict dualism of body and soul. But even for an Aristotelian like Sergeant, who opposes a strict dualism of body and soul, the question of just what it could mean for a part of the brain to be corporeo-spiritual poses no less of a puzzle.

According to Sergeant, body and soul relate as matter and form, and we must not think of body and soul as two substances that each have their own identity apart from the other:[30]

> This Natural Compound called *Man*, is truly *One Thing*, and not aggregated of *more* Things Actually Distinct; since the *Form*, called the *Soul*.
>
> (Sergeant 1697, 65)

It is wrong to think of body and soul as two substances each with an identity on their own apart from the other, because on the one hand, the soul is incomplete without the body, and on the other, the body would not be a human body were it not for its union with the soul. A body that is not united with a soul might look like a human body, but just like a statue, it would not be one.

Now perhaps an Aristotelian thinker who holds this view could say that, because body and soul relate as matter and form, and because the identity of the body as a human body is a function of its union with the soul, the human body is somehow corporeo-spiritual. But even if we were to grant the Aristotelian this way of speaking, being corporeo-spiritual,

on this construal of the notion, would be a characteristic of the human body as a whole, not a prerogative of one of its parts. The notion of corporeo-spirituality that Sergeant wants to reserve for a specific part of the brain, then, does not sit well with either a strict dualism of body and soul, or an Aristotelian hylomorphism were soul relates to body as the form that identifies it as the kind of thing it is.

7. Conclusion

Locke's dry irony is justified. With the central notion of corporeo-spirituality unexplained, it seems unlikely that any reader would have found in Sergeant a clear account of "how material things get into the imateriall soule." But even if Locke may have been rightly underwhelmed by the account he found in *Solid Philosophy* of how bodily stimuli lead to the reception of a form in the immaterial soul, it would be unfair to Sergeant to leave matters at that. For as we have seen, in works such as *Solid Philosophy* and the *Method to Science*, Sergeant offers a valid diagnosis of what is problematic about the Cartesian theories of thinkers such as Le Grand. Failing to identify a natural nexus between bodily changes and mental representations, they resort, or need to resort, to supernatural causes for our ideas. And in doing so, Sergeant fears, they open the doors to an enthusiasm according to which God is the direct author of our mental lives. In order to block this road to enthusiasm, Sergeant seeks to develop a naturalistic account of the causation of our cognitive acts. Developing such an account involves explaining how bodily states lead to cognitive states in the immaterial soul that pertain to distal objects.

And here Sergeant fails, like pretty much every one else before and after him who has chosen not to remain agnostic. And remaining agnostic about how bodily changes lead to parallel changes in the soul was not an option for Sergeant. For his friend, Kenelm Digby, remaining agnostic about the mechanisms of body-soul interaction in cognitive processes perhaps was a perfectly valid position to hold. But having just charged the Cartesians with a failure to provide a naturalistic account of the causation of ideas, Sergeant could not remain silent. He had to make an effort to show that there are ways to account for the causation of cognition without resorting to the kind of divine intervention he thinks Cartesians like Le Grand inevitably have to place at the centre of their cognitive theories. If he failed here, it is because the perhaps smoother path to agnosticism had been blocked off by the valid problems he himself had raised for Cartesian contemporaries such as Le Grand.

Notes

1. Cartesians such as Régis in France and Le Grand in England used the scholastic handbook format to facilitate the entrance of the Cartesian system in university curricula. On this strategy, see Ariew (2014), 201–10. For a brief overview of Le Grand's life and work, see Hutton (2015), 235, and also Easton (2016).

2. The most detailed study of Sergeant's philosophical writings and their context remains Krook (1993).
3. On this shift in focus in Sergeant's writings, see Southgate (2000), Levitin (2010) and Adriaenssen (2017), ch. 6.
4. On Le Grand on animal generation, see Adriaenssen 2018.
5. "Haec repetitis sectionibus deprehendi, ex quibus non improbabiliter deducam, sicuti ex grandioribus et elatioribus papillis alias a me in lingua observatis, gustus organum elicitur ex peculiari situ, et nervorum protractu, ita ex copiosa harum papillarum congerie et copiosiori, grandiorisque, earum proventu in organis, ubi maxime Animalia tactus motione afficiuntur, ex earundem etiam propagine in reliquo ambitu, ubi tactus vires etiam exerat, adequatum tactus organum sufficienter haberi." Malpighi 1665, 23–24.
6. "[S]atius tamen, relicta animae divisione, cerebro polypi natura congruentius adaptare possumus, cum extremis nerveis propaginibus, veluti oblongis exporrectis brachiis, externorum ictus et concussiones . . . ex inducta titillatione noscere valeat." Malpighi 1665, 26.
7. "Omnis namque Effectus suae Causis similis est." Le Grand 1698a, 75.
8. "Quam tamen occasionem non esse causam ideae volunt, cum sit ipsi omnino dissimilis. Effectum autem simile esse causae suae asserit par. 100. Quare investigandum nobis est quid sit occasio illa quae sub nullo genere causarum comprehenditur." Sergeant 1698, 132.
9. "Existimare debemus Animam hoc modo secum discurrere. Jam a motu in nervum me excitari percipio; unde moneor ut *Facultatem* meam ideas eliciendi exeram, atque idcirco Ideam hanc vel illiam *eliciam*." Sergeant 1698, 133.
10. See Sergeant 1698, 133–34.
11. "At hoc ponit Animam habere *jam* in antecessum Ideam Determinatam de idea *illa* quam . . . elicere intendit." Sergeant 1698, 133.
12. Descartes at times suggests that all of our ideas are in some sense innate. Le Grand does not clearly commit to this strong a view. Even though at one point in the *Entire Body* he writes that "there is nothing in our *Idea's* which was not first inbred our *Mind*," on the same page he seems to allow that the idea of motion, or those ideas "which have affinity with *motion*' could be imprinted from without." Le Grand 1694, 328.
13. Le Grand 1698a, 26–27.
14. "Fateor me nescire prorsus quid *Occasio* illa conferat, vel quem Sensum habere possit." Sergeant 1698, 133.
15. "[E]x solo scilicet Dei beneplacito, quemadmodum ex beneplacito Humano sit, quod voces hae vel illae hoc vel illud significent." Le Grand 1698a, 31.
16. "[C]um ponant Cartesiani Motus istos *omnino* esse *Dissimilis* Affectioni illi quae gignitur in *Mente*; ac, proinde non *Causas ejus*, sed *Occasiones* tantum esse, sit, ut nihil *determinate*, seu ut ab alio *Diversum*, percipere aut cognoscere valeamus, aut *Diversam* Animae *Affectionem* vel Ideam *elicere* vel *habere*; nisi Beneplacitum Divinum, interruptum hunc Causarum Naturalium Cursum suppleat et resarciat, . . . idque toties quoties Cognitione aliqua opus habemus." Sergeant 1698, 141.
17. "Sed sola dei voluntate ita connecti animam ac corpus, ut ex occasione specierum, . . . anima ideas eliciat." Le Grand 1698b, 97.
18. See also Clatterbaugh 1998, 108 for discussion.
19. On the identity of material substances in Sergeant, see Adriaenssen and de Boer (2019).
20. In Sergeant 1696, 275.
21. At this point an occasionalist could perhaps object that fire is fire in virtue of its inner structure. Even if fire lacks the causal power to heat and God is the only causal agent, what makes it fire is the fact that it has a structure of a

certain kind, which God uses to bring about heat. Sergeant does not consider this kind of view.

22. These three operations form the topics of the first three books of Sergeant 1696.
23. "nihil de voluntate Dei nobis cognoscere datur (nisi per revelationem) antequam eventus positus fuerit." Sergeant 1698, 137. The argument here assumes that the divine will might change, and that if God has so far willed that fire be a source of heat, he might will otherwise in the future. It seems unlikely that Le Grand would grant Sergeant this assumption.
24. On the charge of enthusiasm in Sergeant against Cartesian theories of ideas, see also Heyd (1995) 120–21, 128–30. See also Adriaenssen (2017), ch. 6.
25. "Deum sibi inexistentem Cartesianus quis deprehendit per ideam, cur non ergo instar Enthusiastae sic etiam concludat: Deus in me est, et ego in Deo, ergo per Deum inexistentem Omnia ago." Schoock 1643, 258–59.
26. A form as it exists in the soul is what Sergeant calls a notion. His theory of notions, he believes, has considerable advantages over the theories of ideas in modern authors such as Descartes and Locke, which he takes to lead to skepticism. For discussion, see Adriaenssen (2017), ch. 6.
27. Digby's account of the seat of knowledge is distributed over various chapters of the *Two Treatises*. Chapter 35 of the First Treatise describes the *septum lucidum* as the locus of the common sense, and compares it with Descartes' pineal gland (Digby 1644, 296–97). The term "seat of knowledge" is first used in Chapter 32 of the First Treatise (Digby 1644, 275).
28. Digby is committed to the Aristotelian account of cognition as a kind of assimilation, in which the subject of cognition somehow takes on the nature of its object: "What then can we imagine, but that the very nature of a thing apprehended, is truly in the man, who apprehend it . . . And that man, by apprehending, doth become the thing apprehended?" Digby 1644, 356.
29. On Locke's annotations to *Solid Philosophy*, see Yolton 1951.
30. Although Sergeant with his account of cognition in terms of effluvia and a seat of knowledge in general hews closely to Digby, it is not clear that the two agree on mind–body union. In works such as his *Observations upon Religio Medici*, Digby described the soul as the "substantial forme" of the body (Digby 1661, 82). But in the *Two Treatises* he happily aligned himself with "Avicenna in his booke *De anima et Almahad*, and Monsieur des Cartes in his Methode" in claiming that "man is compounded of some other substance besides his body." Digby 1644, 415–16. On Digby and dualism, see Garber and Wilson 1998, 839. Digby's appeal to the seat of knowledge as a mediator between body and soul fits well with his dualist language in the *Two Treatise*, but does not sit as easily with the more Aristotelian view in the *Observations*.

Literature

Adriaenssen, Han Thomas. *Representation and Scepticism from Aquinas to Descartes*. Cambridge: Cambridge University Press, 2017.

———. "Antoine Le Grand on the Identity Over Time of the Human Body." *British Journal for the History of Philosophy* 26, no. 6 (2018): 1084–109.

Adriaenssen, Han Thomas, and Sander de Boer. "Between Atoms and Forms. Natural Philosophy and Metaphysics in Kenelm Digby." *Journal of the History of Philosophy* 57, no. 1 (2019): 57–80.

Ariew, Roger. *Descartes and the First Cartesians*. Oxford: Oxford University Press, 2014.

Baillet, Adrien. *A Life of Monsieur Des Cartes*. London: R. Simpson, 1693.

Casaubon, Meric. *A Treatise Concerning Enthusiasme*. London: R.D., 1654.
Clatterbaugh, Kenneth. *The Causation Debate in Early Modern Philosophy 1637–1739*. London: Routledge, 1998.
Digby, Kenelm. *Two Treatises. In One of Which, the Nature of Bodies; in the Other, the Nature of Mans Soule Is Looked into*. Paris: Gilles Blaizot, 1644.
———. *A Discourse Concerning the Vegetation of Plants*. London: John Dakins, 1661.
Easton, Patricia. "Antoine Le Grand." In *Stanford Encyclopedia of Philosophy*, edited by Edward Zalta, 2016, Spring ed. https://plato.stanford.edu/archives/spr2016/entries/berkeley.
Garber, Daniel, and Margaret Wilson. "Mind-Body Problems." In *Cambridge History of Seventeenth-Century Philosophy*, edited by Daniel Garber and Michael Ayers, vol. 1, 833–67. Cambridge: Cambridge University Press, 1998.
Hatfield, Gary. "The Cartesian Psychology of Antoine Le Grand." In *Cartesian Empiricisms*, edited by Mihnae Dobre and Tammy Nyden, 251–74. New York: Springer, 2013.
Heyd, Michael. *Be Sober and Reasonable. The Critique of Enthusiasm in the Seventeenth and Eighteenth Centuries*. Leiden: Brill, 1995.
Hutton, Sarah. *British Philosophy in the Seventeenth Century*. Oxford: Oxford University Press, 2015.
Krook, Dorothea. *John Sergeant and His Circle. A Study of Three Seventeenth-Century English Aristotelians*. Leiden: Brill, 1993.
Le Grand, Antoine. *An Entire Body of Philosophy According to the Principles of the Famous Renate Des Cartes in Three Books*. London: Samual Roycroft, 1694.
———. *Dissertatio de ratione cognoscendi*. London: John Hartley, 1698a.
———. *Censura Justissima Responsi, ut habetur, terribilis; cui titulus est Ideae cartesianae ad lydium veritatis lapidem*. London, 1698b.
Levitin, Dmitri. "Reconsidering John Sergeant's Attacks on Locke's *Essay*." *Intellectual History Review* 20, no. 4 (2010): 457–77.
Malpighi, Marcello. *De externo tactus organo*. Naples: Apud Aegidius Longum, 1665.
Schoock, Martinus. *Admiranda methodus novae philosophiae Renati Descartes*. Utrecht: Ex officina Joannis van Waesberge, 1643.
Sergeant, John. *The Method to Science*. London: W. Redmayne, 1696.
———. *Ideae Cartesianae ad Lydium Veritatis Lapidem Expensae*. London: Abel Roper, 1698.
———. *Raillery Defeated by Calm Reason. The New Cartesian Method of Arguing and Answering Expos'd*. London: D. Brown, 1699.
———. *Trans-Natural Philosophy, or Metaphysicks*. London: D. Brown, 1700.
———. "Life of the Rev. John Serjeant, Written by Himself." *Catholicon* 3 (1816): 97–104.
———. *Solid Philosophy, Against the Fancies of the Ideists*. New York and London: Garland, 1984. [Reprint of the 1697 first edition].
Southgate, Beverley. "Beating Down Scepticism. The Solid Philosophy of John Sergeant, 1623–1707." In *English Philosophy in the Age of Locke*, edited by Matthew Stuart, 281–315. Oxford: Clarendon Press, 2000.
Wood, Anthony À. *Athenae Oxonienses*, vol. 2. London: Thomas Bennet, 1692.
Yolton, John. "Locke's Unpublished Marginal Replies to John Sergeant." *Journal of the History of Ideas* 12, no. 4 (1951): 528–59.

14 Berkeley on Causation, Ideas, and Necessary Connections

Sebastian Bender

1. Introduction: Incomplete Outsourcing and the Trouble With Finite Causation

It is both customary and tempting to compare Berkeley's view on causation to that of Malebranche.[1] Malebranche famously subscribes to the doctrine of occasionalism, according to which God is the only genuinely causally active being.[2] Created beings, of which there are only two types according to Malebranche's dualist ontology—namely, minds and bodies—may seem to be real causes, but in fact are nothing but occasions for God to perform certain actions. There is thus no finite causation according to Malebranche; all causation comes from God, an infinite being.

Like Malebranche, Berkeley is a dualist,[3] though his dualism is one of minds and *ideas*. On his immaterialist metaphysics, there are no mind-independent material substances, and bodies turn out to be nothing but ideas.[4] The tree in front of my window, for example, is nothing but a collection of ideas perceived by my mind. Like Malebranchean bodies, Berkeleyan ideas (and hence Berkeleyan bodies as well) are entirely passive and causally inert.[5] Instead, Berkeley explains cases of apparent idea-idea causation (and hence body-body causation) in terms of immediate divine intervention, somewhat like Malebranche. Thus, the "production of natural things" is "ascribed to the immediate and sole operation of God" (*PHK* 150). The causal activity that is usually attributed to finite things is thus, as it were, outsourced to God. This outsourcing is not complete, however: in contrast to Malebranche, Berkeley allows at least for some genuine non-divine, finite causation. He emphasizes over and over that *minds* or *spirits*—that is, immaterial, thinking substances, which are not too different from Cartesian thinking substances—are genuinely causally active. This is something Malebranche explicitly rejects.

While it is generally acknowledged *that* Berkeley takes spirits to be causally active, it is often argued that he *shouldn't*.[6] As a result, he is often portrayed as someone who holds an unstable and perhaps untenable in-between position. The general idea behind this criticism is something like this: Berkeley makes a Malebranchean move with respect to

idea-idea causation. All we observe is that ideas of type A are regularly followed by ideas of type B, but we do not "see" that the As *cause* the Bs. Berkeley concludes in the *Principles of Human Knowledge* that "the connexion of ideas does not imply the relation of *cause* and *effect*" (*PHK* 65)—which amounts to a denial of genuine idea-idea causation (and hence of body-body causation, since bodies *are* ideas).[7] There are nothing but regular, but strictly speaking non-causal, patterns of ideas, which have been established by God. This Malebranchean move, which Berkeley undeniably makes, is then thought to apply equally to the case of finite spirits and their volitions. For it seems that just as in the case of idea-idea connections, the connections between a *spirit's volitions* and the ideas that follow these volitions likewise display nothing but mere regularities. Given that Berkeley denies genuine idea-idea causation on (broadly speaking) Malebranchean grounds, he seems to be forced to deny genuine spirit-idea causation too. In other words, it appears that he should fully embrace the Malebranchean consequences of his system and acknowledge that *neither* ideas *nor* finite spirits are true causes.[8]

Because Berkeley refuses to go this far, but wants to uphold genuine creaturely causation in the case of spirits, he is often charged with half-heartedness and philosophical inconsistency. Nicholas Jolley puts this point as follows:

> We can see why Berkeley found it necessary to depart from Malebranche's unqualified occasionalism, but we cannot defend his departures on grounds of philosophical consistency. Berkeley's position on causality is, at bottom, incoherent. Even in his published writings Berkeley remains more of an occasionalist than he is willing to allow.
> (Jolley 2013, 253)

In this paper, I aim to show that Berkeley's account of causation is in fact consistent. I am certainly not the first one to make such an attempt. Most commentators, however, argue that in order to achieve consistency, Berkeley is under pressure to deny that the connection between causes and their effects is a necessary connection.[9] Whether or not Berkeley thinks that causes necessitate their effects, however, is a rather elusive issue which is very hard to get clear on. For this reason I will pursue a different strategy here and argue that Berkeley can subscribe to the thesis that finite spirits are truly causally active without falling prey to inconsistency, *even if it is granted that Berkeleyan causes necessitate their effects*. The advantage of this approach is that Berkeley's account of causation can be safeguarded against criticisms like the one put forward by Jolley, regardless of how we interpret his stance on the necessity of the causal relation.

The chapter is structured as follows. Section 2 briefly introduces the basic building blocks of Berkeley's metaphysics—namely, his theory of

spirits and ideas—and considers what the *relata* of the causal relation are for Berkeley. Section 3 explains why there is often thought to be pressure on Berkeley to join Malebranche in denying creaturely causation altogether. Section 4 deals with the question whether, according to Berkeley, causes necessitate their effects, and argues, contrary to what some commentators have recently claimed, that it is very difficult to settle this issue conclusively. Section 5 introduces the so-called Transparency Thesis, which is the claim that ideas contain nothing that remains unperceived, to which Berkeley commits himself. Section 6 then pulls the threads together and argues that because the scope of the Transparency Thesis is restricted to ideas, Berkeley has good reasons to make the Malebranchean move mentioned above only in the case of connections between ideas, but not in the case of connections between spirits and the ideas they produce.

2. Spirits, Ideas, and the Causal *Relata*

Berkeley's ontology has quite appropriately been characterized as dualist. For Berkeley, there are only two types of created beings: perceived things and perceivers. The former he labels "ideas" or "sensations," the latter "spirits" or "minds." Spirits are active and ideas are passive. That Berkeley intends the distinction between spirits and ideas to be exhaustive and categorical is clear from section 89 of the *Principles*:

> *Thing* or *Being* is the most general name of all, it comprehends under it two kinds entirely distinct and heterogeneous, and which have nothing common but the name, to wit, *spirits* and *ideas*. The former are *active, indivisible substances*: The latter are *inert, fleeting, dependent beings*, which subsist not by themselves, but are supported by, or exist in minds or spiritual substances.
>
> (*PHK* 89)

On the basis of passages like this there can be no doubt that everything is either a spirit or an idea for Berkeley—there are no entities halfway in between. While this in itself is unsurprising, it might initially seem somewhat perplexing that Berkeley tends to explain the difference between spirits and ideas in terms of activity and passivity. Activity and passivity are certainly a matter of degree: something can be more or less active or passive. But how can the categorical difference between spirits and ideas be grounded in the fact that activity and passivity can come in degrees? Berkeley's answer seems to be that in order to qualify as a spirit, it is enough to be *somewhat* active. In a letter to Johnson he writes that "the soul of man is passive as well as active" (letter to Johnson, March 24, 1730; *W* 2:293). Created (i.e., non-divine) spirits are thus a mix of activity and passivity. Ideas, in contrast, aren't even minimally active: they are,

by their very nature, entirely passive. Moreover, spirits are substances, whereas ideas are "dependent beings," which suggests an asymmetric dependency relation between spirits and ideas. For the existence of an idea the existence of a spirit is required (because perceived things need perceivers), but not the other way around.

What does the activity and passivity of spirits consist in? Berkeley is quite clear on the active component. In section 28 of the *Principles*, he says that when imagining something we "excite ideas," and then adds: "This making and unmaking of ideas doth very properly denominate the mind active" (*PHK* 28). In other words, spirits are active in virtue of their ability to *produce ideas*. Berkeley even goes so far as to describe this production as a kind of *creatio ex nihilo*,[10] thereby ascribing a power to finite, created spirits which is usually reserved for God.[11]

With respect to the passivity of spirits, Berkeley presumably thinks that spirits are passive when they are given ideas that they do not produce themselves, as, for example, when I see the tree in front of my house. (Recall that on Berkeley's immaterialist ontology the tree is nothing but a collection of ideas.) In cases like this, it is God who produces the relevant ideas. There might also be mixed cases in which spirits are more or less active with respect to one and the same idea.[12] However this may be, the activity and passivity of finite spirits certainly comes in degrees. There is only one rather special spirit—namely, God—where this is not the case, for God is "pure activity," and hence not passive at all. While created spirits are always somewhat passive because they perceive ideas which are not produced by themselves, this is different in the divine case. God never passively perceives anything, as we do, but is fully active with respect to all ideas, whether they are only in his own mind or in other minds as well.[13]

Another difference between God and us is that, besides ideas, God can also create spirits, which is something finite spirits cannot do. This brings me to the question of the causal *relata*. Obviously, God is a cause for Berkeley, of both ideas and (finite) spirits. Finite spirits are both causes and effects: they are effects because they are created by God, and they are causes because they bring about at least some ideas. Unlike finite spirits, ideas are only effects; that is, they never are (and never can be) causes. Together with Berkeley's dualist ontology, this entails that only spirits can be causes, and in fact Berkeley subscribes to this rather curious sounding doctrine: "[I]t is plain philosophers amuse themselves in vain, when they inquire for any natural efficient cause, distinct from a *mind* or *spirit*" (*PHK* 107; see also *DHP* 217). That is, every being that qualifies as a cause must be a *cognitive* being.

Why does Berkeley hold that only spirits can be causes? Without going into too much detail, the answer is, I think, that according to Berkeley all activity is by definition *volitional* activity. In a letter to Johnson, Berkeley makes clear that he sees a close relation between something's being a

cause and its having a will: "[A] proper active efficient cause I can conceive none but Spirit; nor any action, strictly speaking, but where there is Will" (letter to Johnson, November 25, 1729; *W* 2:280). Thus, being active and being volitional (and hence being cognitive) go hand in hand on Berkeley's view.[14] His slogan may be put as follows: a thing can *do* something only if it *wills* something. Thus, volitional activity is the only kind of activity Berkeley acknowledges. He seems to think that a non-volitional, non-cognitive kind of activity is simply inconceivable; in fact, he comes very close to saying just that in the letter to Johnson. Perhaps the thought is that for an entity to be active it needs to be *directed* at something else, and that such directedness requires intentionality, since this is the only kind of directedness we can conceive of (because we are acquainted with it from our own mental states).[15] On this suggestion, Berkeley tacitly assumes that the fact that a being is active, and hence oriented towards something else, can be explained only in cognitive and volitional terms. Alternatively, it may be that Berkeley holds that the connection between a cause and its effect must be an *intelligible* one, and that such intelligibility can only be achieved when causes are cognitive and volitional entities. Kenneth Winkler, for example, argues that, for Berkeley, a true cause must explain its effects and render them intelligible, and for this mere constant conjunction is not enough.[16] There must be an additional, intelligibility-conferring link between the cause and the effect. To confer the intelligibility required, Winkler argues, this link must consist in some form of *final* causation. Because only agentive beings can acts for ends, however, this sort of final causation needs to be analyzed in cognitive terms.[17]

To sum up, there are only two types of beings for Berkeley—namely, spirits and ideas—and only spirits can be causes. Unlike Malebranche, then, Berkeley acknowledges the existence of finite causes, even though causal activity is restricted to beings which are cognitive and volitional. It is worth mentioning in this context that Berkeley stands in a tradition which sees all causation as a kind of *agent causation*. For him causes are agents (i.e., spirits or substances), and not events. Whether or not Berkeley can consistently allow for causally active finite spirits within the constraints of his philosophical system will be the theme of the rest of this paper.

3. Berkeley's (Alleged) Occasionalism

I am now going to explain one important reason why some commentators think that there is pressure on Berkeley to give up finite causation altogether, including in the realm of spirits. The basic rationale is that the reasoning Berkeley uses to reject genuine idea-idea causation applies equally to all forms of finite causation, even though Berkeley himself fails to see it. On this reading, Berkeley's position that some creatures (spirits)

are genuine causes while others (ideas) are not is ultimately inconsistent. In what follows I will focus mainly on Jolley's interpretation, because it presents an especially clear and straightforward version of such a reading.

Let us start, however, with the uncontroversial case of apparent idea-idea causation. In section 65 of the *Principles*, Berkeley explains that a certain type of connection between ideas should not be mistaken for the relation between cause and effect:

> [T]he connexion of ideas does not imply the relation of *cause* and *effect*, but only of a mark or *sign* with the thing *signified*. The fire which I see is not the cause of the pain I suffer upon my approaching it, but the mark that forewarns me of it. In like manner, the noise that I hear is not the effect of this or that motion or collision of the ambient bodies, but the sign thereof.
>
> (*PHK* 65)

In everyday life, we may talk as if the flame of the candle *causes* the pain in my hand. According to Berkeley, however, this should be considered loose—and strictly speaking, false—talk. As a matter of fact, there is no causal connection whatsoever between the flame and the pain. More generally, because ideas are inert and utterly passive, one idea is never the genuine cause of another idea, and all the apparent causal connections around us must be explained in a different way. So what is going on instead? Berkeley's answer is that ideas are nothing but signs "instituted by the Author of Nature" (*PHK* 66). The flame and the pain are related to each other not as cause and effect, but as sign and signified. God is the direct cause of both ideas. Hence, at least as far as the "connection of ideas" is concerned, Berkeley agrees with Malebranche that God is the only true cause; that is, in cases where finite spirits are not involved as additional agents, God is the sole causal agent.

Of course, Berkeley acknowledges that we do not always speak with metaphysical rigor. As he points out to Johnson:

> Cause is taken in different senses. A proper active efficient cause I can conceive none but Spirit; nor any action, strictly speaking, but where there is Will. But this doth not hinder the allowing occasional causes (which are in truth but signs); and more is not requisite in the best physics, i.e. the mechanical philosophy.
>
> (Letter to Johnson, November 25, 1729; *W* 2:280)

Thus, as long as we are doing physics, it is unproblematic to stick to our normal causal language. When engaging in philosophical inquiry, however, we need to distinguish precisely between different uses of the word "cause."[18] Like Malebranche, Berkeley contrasts proper causes with *occasional* causes. Does this make him an occasionalist? If by "occasionalism"

we simply mean the doctrine that God is the only true cause, Berkeley is surely an occasionalist with respect to (apparent) idea-idea causation, for in this realm God is the only real agent. At the same time, however, we must not overlook his important innovation of interpreting the relations between ideas as *semantic* relations between sign and signified. (Berkeley himself stresses that occasional causes "are in truth but signs.")

While Berkeley's position regarding the "connections between ideas" is reasonably clear (God causes all of them), things get more complicated when finite spirits enter the picture. Early in his career, Berkeley seems at times to reject *all* creaturely causation and thus to endorse a position similar to full-blown Malebranchean occasionalism.[19] As we have seen in Section 2, however, this is not Berkeley's considered view in his published works—most prominently in the *Principles* and the *Dialogues*—where he assumes that there are true finite causes as well (namely, spirits). Many commentators have viewed this commitment of Berkeley's with suspicion. Sukjae Lee nicely summarizes this tendency as follows: "The affirmation of the causal efficacy of finite spirits or minds like us raises questions about consistency."[20] Nicholas Jolley goes further and bluntly asserts that Berkeley's account in the *Principles* and *Dialogues* is inconsistent. According to Jolley, Berkeley would be better off had he never introduced genuine finite causality into his system.

Why the charge of inconsistency? Following Jolley, the reasoning is roughly the following:[21] (i) In the case of idea-idea connections, Berkeley argues that we have only inductive knowledge of them, but no *a priori* knowledge. (ii) The fact that we have no *a priori* knowledge of the connection of ideas shows that there is no necessary connection between the relevant ideas. (iii) This shows that there are no genuinely causal connections among ideas, for (Jolley argues) "Berkeley is committed to the doctrine that genuinely causal connections . . . must be knowable a priori."[22] (It is assumed here that that all necessary relations are knowable *a priori* and that causal relations are necessary relations. Later in this section I will say more about the former assumption. The latter assumption will be discussed in Section 4.) (iv) Turning to finite spirits, we have no *a priori* knowledge of the connection between the volitions of finite spirits and the effects of these volitions. That is, our knowledge of spirit-idea connections is inductive, just as our knowledge of idea-idea connections is. (v) That we have no *a priori* knowledge of the connections between the volitions of spirits and ideas shows that there is no necessary connection between a spirit's volition and the effect of that volition (analogous to the second step). (vi) It follows from this that the volitions of spirits are not causally efficacious (analogous to the third step, again assuming that causal relations are necessary). Hence, spirits cannot be (genuine) causes, despite Berkeley's claim to the contrary.

The general idea here is that the two cases—idea-idea connections on the one hand and spirit-idea connections on the other—are exactly

analogous. If it is true that all (genuine) causal relations are knowable *a priori* for Berkeley, as Jolley claims, and if we can only have inductive, non–*a priori* knowledge of the connections between spirits' volitions and the effects of these volitions, then it indeed follows that spirits cannot be (genuine) causes, contrary to what Berkeley claims.

Two passages which seem to support Jolley's reasoning are sections 28 and 31 from the *Principles*. In section 31, Berkeley writes:

> That food nourishes, sleep refreshes, and fire warms us; that to sow in the seed-time is the way to reap in the harvest, and, in general, that to obtain such or such ends, such or such means are conducive, all this we know, *not by discovering any necessary connexion between our ideas, but only by the observation of the settled laws of Nature*, without which we should be all in uncertainty and confusion, and a grown man no more know how to manage himself in the affairs of life, than an infant just born.
>
> (*PHK* 31; my emphasis)

Here Berkeley sounds very much like Hume.[23] He argues that, when trying to figure out which idea follows which, doing so on an *a priori* basis would be utterly hopeless. The only way to know which idea is the next one in the succession of ideas that God presents us with is by induction. Once we have observed nature long enough, we are able to identify certain regular patterns—that is, laws of nature—which enable us, at least on some occasions, to predict which idea is going to come next (or which idea *would* be next under certain additional conditions, such as moving one's hand closer to a flame). In order to have such knowledge, however, I must have experienced similar situations. For the first idea's intrinsic nature on its own does not enable me to infer the occurrence of the second idea; all we perceive is that the second idea succeeds the first one. That Berkeley holds this position should not come as a surprise, given that ideas function as arbitrary signs for him. It so happens that God chose that the pain idea should succeed the flame idea, but he could have chosen completely different signification relations and hence a completely different set of laws of nature. That we cannot *discover* any necessary connections between distinct ideas, as Berkeley states in section 31, is thus due to the fact that there *are* no necessary connections between them. For Berkeley, all ideas are "loose and separate," as Hume would later say.[24]

At this point one may wonder, however, whether the fact that all our knowledge of connections between ideas is only inductive shows that there are no necessary connections between those ideas. One might think that the answer must be no, for it seems that from the fact that we do not *discover* a necessary connection between *a* and *b*, it does not follow that there isn't one. If Jolley is right, however, then causal relations are both

necessary *and* knowable *a priori* for Berkeley, in which case our inability to discover that *a* necessitates *b* would indeed show that *a* and *b are* in fact "loose and separate" and not connected necessarily. I think Jolley has a point here, for it is quite common for empiricists to make a smooth transition from epistemology to metaphysics in similar contexts.[25] I will argue below, however, that we need to be careful and distinguish between different cases. This crucial step—basically, the inference from having merely inductive knowledge of something to its being contingent—is legitimate on Berkeley's view in certain cases but not in others. For now, however, let us keep in mind that Berkeley is primarily making an *epistemic* point in section 31 ("not by *discovering* any necessary connexion between our ideas"), not a metaphysical one (although he clearly endorses the metaphysical thesis as well).

In the second passage, section 28 of the *Principles*, Berkeley makes a point about connections between *volitions* and the *effects* of these volitions, which seems to parallel the one in section 31:

> I find I can excite ideas in my mind at pleasure, and vary and shift the scene as oft as I think fit. It is no more than willing, and straightway this or that idea arises in my fancy: and by the same power it is obliterated, and makes way for another. This making and unmaking of ideas doth very properly denominate the mind active. Thus much is certain, and *grounded on experience*.
>
> (*PHK* 28; my emphasis)

Just as in the case of idea-idea connections, Berkeley says here that when imagining something, the relation between willing and the effect of this willing is known by induction only.[26] Hence, there is textual evidence suggesting that, on Berkeley's view, our access to volition-idea connections is no different from our access to idea-idea connections. In neither case do we have *a priori* knowledge. All we know about such connections is inductive and "grounded on experience."

But if the relation between causes and their effects is necessary and knowable *a priori*, as commentators like Jolley have it, then it follows that Berkeley has to deny that finite spirits are causally active. For if there were a genuine direct causal connection between a spirit's willing something and the occurrence of an idea, then we would be able to apprehend it on an *a priori* basis. Berkeley seems to argue, however (in passages like section 28 of the *Principles*), that the connection between a spirit's volitions and the upshot of these volitions can only be known inductively. It seems, therefore, that Berkeley would be well-advised to align himself more closely with Malebranche's occasionalism and deny that finite spirits are genuine causes.[27]

The argument sketched here is based on at least two crucial assumptions: (i) that causes necessitate their effects for Berkeley; and (ii) that

connections which are not knowable *a priori* cannot be necessary connections. In the remainder of the chapter I will discuss these two assumptions in turn, the first in Section 4, the second in Sections 5 and 6.

4. Necessity

Do Berkeleyan causes necessitate their effects? There is no consensus among commentators about how to answer this question. Some, among them Jolley, assume that there is a necessary connection between causes and effects according to Berkeley.[28] Others, most recently Kendrick, have argued that this is not the case.[29] I will not attempt to settle this dispute here. All I intend to do is push back a little against the view that Berkeley clearly abandons an account of causation which takes causation to involve necessary connection. I think the issue is not nearly as clear as some proponents of this view have argued.

Why do some interpreters hold that causes do not necessitate their effects according to Berkeley? One important reason is that in his *Notebooks* Berkeley explains the difference between causes and occasions as follows: "What means Cause as distinguish'd from Occasion? nothing but a Being wch wills w^{n} Effect follows the volition" (*PC* 499; *W* 1:63).[30] It is natural to read this as an enhanced version of a Humean account of causation. Winkler characterizes Berkeley's position as follows: "Berkeley resembles Hume in treating efficacy as constant conjunction, but differs from him in requiring that the first event in any such conjunction be an act of will."[31] Causation is thus defined as a species of constant conjunction, and so not in terms of necessary connection. It seems therefore that Berkeley sketches a regularity account of causation in the *Notebooks* which does without necessary connection.

Whether this "volition-plus-regularity" account is Berkeley's considered view, however, is far from clear.[32] There are a number of passages in his published writings where Berkeley seems quite clearly to assume that there is a necessary connection between causes and their effects.[33] Let me mention three of them. The first is from his *Theory of Vision Vindicated*, where he writes:

> But, where there is no such relation of similitude or causality, *nor any necessary connexion whatsoever*, two things, by their mere coexistence, or two ideas, merely by being perceived together, may suggest or signify one the other.
>
> (*TVV* 39; my emphasis)[34]

In this passage, Berkeley seems to imply that causation is one type (among others) of necessary connection. He would be expressing himself rather misleadingly if his view were that causes do not necessitate their effects.[35]

Second, Berkeley often distinguishes between what is arbitrary and what is necessary. In the *Alciphron*, he writes:

> To me it seems, that a man may know whether he perceives a thing or no; and, if he perceives it, whether it be immediately, or mediately; and, if mediately, whether by means of something like or unlike, necessarily or arbitrarily connected with it.
>
> (*Alciphron* IV.9)

What does this have to do with the topic of causation? Recall that the relation between sign and signified is an *arbitrary* one (e.g., the relation between the idea of the flame and the idea of pain). Relations between causes and effects, in contrast, are clearly *non-arbitrary* relations for Berkeley. Now, if all non-arbitrary relations are necessary—as the binarity of the arbitrary–necessary distinction makes it seem—then this implies that relations between causes and effects are necessary relations.[36]

Third, Berkeley seems to imply in section 31 of the *Principles* (a passage that was already discussed in Section 3) that causes necessitate their effects, when he writes: "That food nourishes, sleep refreshes . . . all this we know, not by *discovering any necessary connexion between our ideas, but only by the observation of the settled laws of Nature*" (*PHK* 31; my emphasis). On the most natural reading of this passage, Berkeley implies that if food really did cause nourishment (and sleep refreshment), then the connection between food and nourishment would be a necessary one. His reasoning seems to be that *because* food and nourishment (as well as sleep and refreshment) are not connected necessarily, the first also cannot be the cause of the second. This argumentation presupposes that necessary connection is indispensable to causation. In section 60 of the *Principles* Berkeley makes a similar point and explains that "ideas have nothing powerful or operative in them, nor have any necessary connexion with the effects ascribed to them" (*PHK* 60). Again, this rather unambiguously suggests that Berkeley takes the connection between cause and effect to be necessary.

I hope that this survey has made clear that Berkeley's position regarding the necessitation of effects by their causes is not at all easy to assess. On the one hand, there are passages which suggest that Berkeley at times sympathizes with a volition-plus-regularity account of causation, thereby abandoning the idea that causation always involves a necessary connection. On the other hand, there are quite a few passages where he appears to commit himself to the view that causes do necessitate their effects. Generally, it is surprisingly difficult to determine exactly how much of a "Humean" Berkeley ultimately is, and how his early remarks in the *Notebooks* relate to his utterances in his published works. It is therefore no surprise that different commentators have interpreted Berkeley differently on this point.

As I said, my plan is not to settle this dispute here. Before I go on, however, I would like to make four general remarks. First, the view that causes necessitate their effects is extremely widespread among early modern philosophers (including Berkeley's predecessor Locke).[37] Berkeley was clearly aware of this fact, and yet he never explicitly criticizes or attacks the prevailing view. This suggests that he wanted to refrain from openly rejecting the necessary connection account of causation. Second, even if he rejects this account, there still must be some cases in which a cause does necessitate its effect, namely, whenever God (or one of God's volitions) is the cause.[38] On that score, I would simply like to point out that Berkeley never explicitly makes a distinction between two types of causation—one with necessitation, the other without. Third, one important motivation for denying that Berkeley views causation as a necessary connection is that this is a way of safeguarding his commitment to finite causation.[39] The Malebranchean argument discussed above which, according to Jolley, puts pressure on Berkeley to deny all finite causation can be rebutted if causation is not understood as necessary connection. While this is true, I think there is another way of escaping the grip of the Malebranchean argument presented in Section 3 (this will be the topic of the next two sections). Fourth, even if it is only for dialectical purposes that Berkeley assumes that causes necessitate their effects, but he himself rejects this view, he never indicates that he believes that this view would threaten the consistency of his philosophical system. In particular, he does not seem to think that if an account of causation which understands causation as necessary connection were true, this would undermine the causal activity of spirits.[40] Thus, even if Berkeley is not sincere in taking the view that causes necessitate their effects (or is not expressing it as his own view), it is nonetheless puzzling that he seems never to consider the necessary-connection account a threat.

5. The Transparency Thesis

Before we return to the question of whether Berkeley can consistently hold (i) that finite spirits are genuinely causally active, and (ii) that causes necessitate their effects, one more intermediary step is required. In Section 3, I pointed out that one should not confuse the (epistemic) claim that we are unable to *discover* any necessary connections between ideas, with the (metaphysical) claim that there *are* no such connections. For even if we grant that spirits are in principle incapable of spotting necessary connections, this by no means entails that there are not some ideas which are connected necessarily. It is therefore a puzzle that Berkeley seems to transition quite smoothly from the first to the second claim. In this section and the next, I will argue that he is in fact justified in making this transition, but only because he helps himself to an additional principle.

To see this, we need to consider in what sort of cognitive relation spirits stand to the ideas which they perceive. Berkeley holds that minds have full access to all of their ideas, at least in some sense. He subscribes to what Tom Stoneham has called the Transparency Thesis.[41] The Transparency Thesis states roughly that ideas contain nothing in them that remains unperceived.[42] Berkeley makes use of this principle repeatedly—for example in what he presents as a "refutation" of skepticism in section 87 of the *Principles*: "Colour, figure, motion, extension and the like, considered only as so many *sensations* in the mind [i.e., as ideas], are perfectly known, there being nothing in them which is not perceived" (*PHK* 87). In other words, there is nothing in Berkeleyan ideas which remains unnoticed by or hidden to the spirits which perceive those ideas. In the *New Theory of Vision*, Berkeley makes the same point:

> Every one is himself the best judge of what he perceives, and what not. In vain shall any man tell me, that I perceive certain lines and angles which introduce into my mind the various ideas of distance, so long as I my self am conscious of no such thing.
>
> (*NTV* 12)

On the face of it, a claim as strong as the Transparency Thesis sounds highly implausible and naive. There surely are, one might think, some things going on in the mind which we are not aware of. So why does Berkeley commit himself to the Transparency Thesis? In the context of his system, the claim about the transparency of ideas is actually well motivated and comes out as almost trivially true. Recall that the *esse* of an idea is to be perceived. That is, the very being of an idea is that it is perceived, and what is not perceived is by definition not an idea. One result of this theory is that all the information encoded in an idea is accessible to us.

Crucially, the Transparency Thesis is a claim only about *ideas*. This restriction leaves room for the existence of cognitive processes in the mind which go unnoticed (thereby avoiding at least some of the implausible results the Transparency Thesis seems to have). In the *New Theory of Vision*, Berkeley writes: "So swift and sudden, and unperceived is the transition from visible to tangible ideas that we can scarce forbear thinking them equally the immediate object of vision" (*NTV* 145). As Gary Hatfield rightly points out, passages like this show that Berkeley acknowledges that there can be something in the mind we are unaware of.[43] However, this does not violate the Transparency Thesis, since what remains unperceived in the example Berkeley gives is the "transition" (i.e., the change) from one idea to the next. The visible and tangible ideas themselves, in contrast, *are* perceived.[44] So, the Transparency Thesis should not be understood in such a way that everything going on in the mind is fully transparent to the mind.

Ideas are not the only items that are representative according to Berkeley. He also talks about *notions*, although it is notoriously difficult to understand what exactly notions are for him. Without going into too much detail, Berkeley introduces notions in addition to ideas because he believes that we are somehow able to think of minds or spirits (i.e., perceivers), too. This thinking about spirits, though, cannot take place in virtue of ideas, because ideas are entirely passive and thus cannot resemble and represent something active (recall that spirits are by definition at least somewhat active).[45] With notions, in contrast, we do just that; they are the mental items which enable us to conceive of minds.[46] Given that the Transparency Thesis is explicitly formulated only with respect to *ideas*, we should take care not to automatically apply it to notions as well. Notions are actually quite different from ideas. My complex idea of a tree does not represent a material tree in the material world (there is no such thing on Berkeley's immaterialist ontology); instead, the tree *just is* a collection of ideas. This is different in the case of notions. My notion of God (the supreme spirit), for example, refers to and represents *God*; but God is not a collection of notions or ideas or anything of this sort. Like us, God is a perceiver, not a thing that is perceived.

Given the different roles ideas and notions play in Berkeley's philosophy, it makes a lot of sense for him to restrict the Transparency Thesis to ideas and to refuse to extend it to notions. In my view, the main reason why notions are not transparent while ideas are, is that the ways in which notions and ideas represent is quite different. In the case of notions, it can quite easily happen that when I entertain a notion of X, there are many things about X I am utterly unaware of. My notion of God, for example, does not contain all the information about God there is, but only a small fraction thereof. This is different in the case of ideas: because my idea of X does not refer to something different from itself, no such lack of information can occur, simply because my *idea* of X just *is* X. This point is succinctly made by Marth Bolton, who stresses that "for Berkeley an idea is its own object; if there is an idea of x, then x itself is that idea."[47] In fact, Berkeley himself points out that even the locution "idea of" (which of course he inherits from his seventeenth-century predecessors) is somewhat misleading.[48] This difference between notions and ideas, then, explains why ideas are fully transparent, while notions are not. When I have an *idea* of X, there is nothing about X that escapes me. By contrast, when I have a *notion* of X, there may be many things about X which escape me.

As will become clear in the next section, the Transparency Thesis plays a crucial role in Berkeley's argument for the claim that ideas are not connected to one another causally, but only as sign and signified. Once we understand this, it will also become clear that this argument cannot be easily adapted to connections between a spirit's *volitions* and its ideas.

6. Induction and Contingency

It is now time to pull the threads together and return to the argument discussed in Section 3. There it seemed that Berkeley makes a very quick transition from our inability to *discover* any necessary connection between two given ideas to there *being* no such connection. The background assumption is that if there were any necessary connections between some of our ideas, we would have *a priori* knowledge of these connections (or at least we could if we paid sufficient attention). It was precisely this move which put pressure on Berkeley to deny that spirits are genuinely causally active. Recall that Jolley argued that the fact that the connection between a finite spirit and an idea (seemingly) produced by that spirit is also not knowable *a priori* shows that there can be no necessary connection, and hence no causal connection, between the spirit and the idea. By pointing out an important dis-analogy between the two cases—connections between ideas on the one hand and connections between spirits and ideas on the other—I will now argue that even on the assumption that Berkeley takes causal relations to be necessary (which, as we have seen in Section 4, is an interpretation which should not be too easily dismissed), he can nonetheless consistently subscribe to the existence of genuinely active spirits.

Returning to the case of idea-idea connections, I think that it is the Transparency Thesis which licenses Berkeley's transition from the epistemological claim to the metaphysical one. How so? Recall that the Transparency Thesis has it that there is nothing in ideas that remains unperceived and that there can be nothing hidden from us in the ideas we perceive. This means, however, that if two distinct ideas were connected necessarily, we would be able to tell that they are so connected. Assume that an idea I_1 really did necessitate the existence of another idea I_2. In that case, we would be able to deduce the occurrence of I_2 on the basis of considering I_1 alone. The necessitation must obtain in virtue of something in I_1: there must be some aspect of I_1 that is such that I_2 must occur. And because the nature of ideas is utterly transparent to us, we would be able to read off the nature of I_1 that it will be succeeded by I_2.

That the Transparency Thesis indeed plays an important role in Berkeley's reasoning about connections between ideas becomes clear in section 25 of the *Principles*:

> [O]ne idea or object of thought cannot produce, or make any alteration in another. To be satisfied of the truth of this, there is nothing else requisite but a bare observation of our ideas. *For since they and every part of them exist only in the mind, it follows that there is nothing in them but what is perceived*. But whoever shall attend to his ideas, whether of sense or reflexion, will not perceive in them any power or activity; *there is therefore no such thing contained in them*.

> A little attention will discover to us that the very being of an idea implies passiveness and inertness in it, insomuch that it is impossible for an idea to do any thing, or, strictly speaking, to be the cause of any thing.
>
> (*PHK* 25; my emphases)

Berkeley appeals to the Transparency Thesis twice in this passage. He stresses that since ideas are by their very nature objects in the mind, they contain nothing in them that is unperceived, which is simply a statement of the Transparency Thesis. He then uses the Transparency Thesis to warrant precisely the sort of transition we are concerned with. From the fact that we do not perceive "in [our ideas] any power or activity," he infers that "there is no such thing contained in them." Crucially, however, this transition from an *epistemological* claim about our ideas to a *metaphysical* claim about those very ideas is only legitimate because ideas are essentially such that there is nothing in them that can escape us (at least not if we "attend" to our ideas). How else would we be able to rule out that the "power or activity" is something that is hidden from us? Thus, the reasoning in section 25 crucially depends on the Transparency Thesis, for without it, Berkeley's argument would not go through.

In section 25 of the *Principles*, Berkeley does not talk about necessary connections, but about power and activity. It is easy to see, however, that a similar reasoning lies in the background when he discusses necessary connections between ideas in section 31. Because the order of ideas is arranged arbitrarily by God (recall that ideas are only related by the sign-signified relation), Berkeley surely holds that there are no necessary connections between ideas. He is in a position to infer this from our inability to *discover* any such connections, however, only because ideas are transparent in the way the Transparency Thesis has it. Without the Transparency Thesis, he would not be able to make so smooth a transition from the epistemological to the metaphysical claim.

That the Transparency Thesis is only a claim about ideas is quite relevant for the present context. The fact that Berkeley needs the Transparency Thesis in his argument concerning connections between ideas shows that he is *not* committed to the *a priori* knowability of *all* necessary connections.[49] There may well be necessary connections we are unaware of, and there may even be cases in which we have *inductive* knowledge of a connection between A and B which obtains *necessarily*. I think that the connection between a spirit and the ideas this spirit produces is precisely such a case. Berkeley says (in section 28 of the *Principles*) that such a connection is known only by induction. However, he *cannot* legitimately infer from this that it holds merely contingently. The reason is that this case falls outside the scope of the Transparency Thesis. One of the *relata* of the connection is a *spirit*, and Berkeley stresses that we have no ideas of spirits, but only notions. What this shows is that the two cases—idea-idea

connections on the one hand, and connections between spirits and ideas on the other—are not in fact analogous, contrary to what might seem to be the case, and what commentators like Jolley claim.

To illustrate this point further, consider again section 28 of the *Principles*, where Berkeley writes: "This making and unmaking of ideas doth very properly denominate the mind active. Thus much is certain, and *grounded on experience*" (*PHK* 28; my emphasis). It is quite easy to take this to be a Malebranchean—or Humean—move (which is how Jolley understands Berkeley) and therefore to ascribe a "volition-plus-regularity" account of causation to Berkeley. I think, however, that at this point we should resist the tendency to "Humeify" Berkeley. He never says or even implies that possessing only *a posteriori* knowledge of a connection C renders C contingent, nor, as we have just seen, is he committed to such a claim. In fact, he can consistently claim that finite spirits are true and genuine causes which necessitate their effects. Even if we are at a complete loss as to *how* spirits produce (or "make and unmake") ideas, this does not mean that there is no necessitating production relation between the spirits and the idea. To reiterate, this is different in the case of connections between ideas. There our being at a complete loss as to how one idea produces another does show that there is no necessitating production relation between ideas; however, this can be shown only with the help of the Transparency Thesis.

7. Conclusion

In this paper I have argued that Berkeley can consistently subscribe to (i) the claim that finite spirits are genuine causes, and (ii) the doctrine that causes necessitate their effects. The first claim is a non-negotiable part of his metaphysics and needs to be accommodated by any interpretation. The second claim is more complicated, but it became clear in Section 4 that Berkeley at least sometimes talks as if causes and effects are connected to each other by necessity. Moreover, he nowhere indicates that this view is inconsistent with his system as a whole, and I think he has good reasons not to be worried. Even though we are unable to discover necessary connections between a spirit and the ideas this spirits produces, this does not show that these connections are not in fact necessary. The difference between spirit-idea causation and idea-idea pseudo-causation is crucial.

Abbreviations

Alciphron	*Alciphron, or the Minute Philosopher*
DHP	*Three Dialogues between Hylas and Philonous*
DM	*De Motu; sive, de motus principio & natura, et de causa communicationis motuum*

NTV *An Essay Towards a New Theory of Vision*
PC *Philosophical Commentaries*
PHK *Of the Principles of Human Knowledge: Part 1*
TVV *The Theory of Vision Vindicated and Explained*
W *The Works of George Berkeley, Bishop of Cloyne*, edited by A. A. Luce and T. E. Jessop, 9 vols. London: Thomas Nelson & Sons, 1948–1957.

All citations are from *W*. References are by section numbers, except in the case of *DHP*, where they are by page numbers.

Notes

1. For a recent example, see Downing 2014.
2. For a detailed discussion of Malebranche's occasionalism, see Stephan Schmid's chapter in this volume (ch. 4).
3. For descriptions of Berkeley as a dualist, see Downing 2013, sect. 3.1.2 and McDonough 2008, 576.
4. That Berkeley rejects material substances but accepts bodies (understood as ideas that are perceived by a mind) becomes clear in many passages. See, for example, *PHK* 47.
5. In *PHK* 25 Berkeley states that "the very being of an idea implies passiveness and inertness in it." Even apart from his idealist commitments, Berkeley argues for the passivity of bodies and maintains that God directly causes all the motion in the universe (see *DM* 32–34; see also Lee 2016, sect. 1.5). For a detailed analysis of Berkeley's conception of ideas, see Saporiti 2006.
6. Jolley 2013 is perhaps the clearest example. I will discuss Jolley's interpretation in some detail in Section 3. See also Pitcher 1981.
7. This Malebranchean move will be discussed in more detail in Section 3.
8. Alternatively, he could adopt the Humean strategy of reconceiving of the causal relation in regularity-theoretic terms. Such a reading of Berkeley is suggested by Winkler 1985, who argues that the difference between volitions and ideas is that the former make the events regularly following them *intelligible* while the latter do not. It is hence the notion of intelligibility (instead of necessary connection) that takes center stage in Berkeley's account of causation according to Winkler. He writes: "When Berkeley distinguishes between [a cause and an occasion] he appeals not to necessary connection, but to the more fundamental, if less clear, notion of intelligibility" (Winkler 1985, 67). This is also where Winkler sees the main difference between Berkeley and Hume: while for Berkeley intelligibility is central to causation, for Hume causes do not render their effects intelligible at all. While I agree with Winkler that Berkeleyan causes are such that they render their effects intelligible, I think that necessary connection still has a role to play in Berkeley's picture.
9. See especially Kendrick 2014, who denies that Berkeleyan causation involves necessitation. Winkler 1985 makes a similar suggestion.
10. See *PC* 830.
11. That the production of ideas is a kind of *creatio ex nihilo* is pointed out by Bettcher 2007, 67–68.
12. See for this point Bettcher 2007, 85. It may be that a finite spirit and God co-produce an idea. For example, when I am dreaming about a tree, Berkeley might say that it is partly God and partly myself who are the cause of this idea.

13. This raises the following interesting question: how does God know about the ideas produced by us? He surely does not passively perceive them, because God is not passive in any respect. My guess is that Berkeley thinks that God is active with respect to all ideas, even the ones produced by us. But how can this be, if we are the causes of these ideas? The answer, I think, is that Berkeley is a concurrentist and holds that God concurs whenever we produce ideas. For a concurrentist reading of Berkeley, see McDonough 2008.
14. It may be, however, that there are volitions that are not causally efficacious. In *PC* 699/*W* 1:85, Berkeley writes: "There may be volition without Power. But there can be no Power without Volition."
15. For this suggestion (although made with respect to Malebranche), see Schmid's chapter in this volume (ch. 4). See also Kendrick 2014 as well as the introduction to this volume.
16. See Winkler 1985.
17. See especially Winkler 1985, 66. However, Winkler does not spell out in detail the connection between final causation and intelligibility.
18. Airaksinen distinguishes no fewer than seven types of causality in Berkeley (see Airaksinen 2011, 93–98).
19. See *PC* 107/*W* 1:18.
20. Lee 2016, section 1.5. For Lee's very elaborate account see Lee 2012.
21. See for the following Jolley 2013, 244–47.
22. Ibid., 245.
23. I am of course by no means the first one to observe this. The Humean tendency has been widely recognized; see, for example, Winkler 1985.
24. Jonathan Bennett nicely explains the similarities, but also the key differences, between Berkeley and Hume on causation: "Berkeley shows that he sees clearly something which many earlier philosophers noticed, and which later impressed Hume: namely, that in observing the worlds around us, we perceive only successions. . . . All there is to *notice* are facts about temporal succession and spatial relations. There are patters or regularities in these facts, and Berkeley writes elegantly about what is involved in discovering nature's regularities, harmonies, analogies, without perceiving any causal connections. Hume holds that these patterns have no ultimate explanation, or none that we could understand . . . whereas for Berkeley they are intelligibly explained by the will of God" (Bennett 2001, 162).
25. Don Garrett labels this "pattern of argumentation" *reductive empiricism*, which he summarizes as follows: "A particular state of affairs is *defined* in terms of a state of affairs that is more commonly regarded only as *evidence* for it" (Garrett 1997, 36). Garrett's examples include Locke's treatment of personal identity, Berkeley's analysis of "real objects," and Hume's reductive account of causation (see Garrett 1997, 36–38).
26. Jolley comments on this passage as follows: "[O]n the most natural reading, this passage asserts that the relation between volition and upshot can be known only on an inductive basis" (Jolley 2013, 246). In a similar vein, Bennett writes on *PHK* 28: "I find 'by experience' that certain volitions are attended or followed by certain upshots, and I trust (in God) that this correlation will continue to hold in the future" (Bennett 1971, 206).
27. It should be noted that even Malebranche grants that spirits are in some sense free to determine their volitions. Unlike Berkeley, however, this determination cannot be a genuinely *causal* determination, because for Malebranche only God is truly causally active. Berkeley, by contrast, stresses that finite spirits are causally active as well.
28. See for example Jolley 2013, who speaks of "Berkeley's view that causality involves necessary connections" (242). See also Stoneham 2002, 147–53. Stoneham explains the relation between Berkeley, Malebranche, and Hume

as follows: "[I]t appears that [Berkeley] sides with Malebranche in thinking that causal relations, where they exist, are necessary. Berkeley disagrees with both Malebranche and Hume, because he thinks that the relation between a volition and an action is not contingent" (148).

29. See especially Kendrick 2014, 4: "Berkeley rejects material (or non-volitional) causation not by relocating necessary connections from material relations to volitional ones, but by denying necessary connection as essential to causation." See also Winkler 1985 and Winkler 1989, 104–36.
30. For similar passages, see *PC* 461/*W* 1:57 and *PC* 699/*W* 1:85.
31. Winkler 1985, 55.
32. For the term "volition-plus-regularity interpretation," see Downing 2014, 225. She argues that this interpretation does not accurately represent Berkeley's considered position.
33. For the following, see the very subtle and detailed discussion in Winkler 1989, 121–36. Winkler acknowledges that Berkeley often has "a tendency to treat causation as a kind of necessary connection" (Winkler 1989, 121). At the same time, he thinks that Berkeley should have resisted this tendency: "Berkeley should not speak as if there is a necessary connection between a finite cause and its effect. . . . Yet Berkeley is powerfully tempted to speak as if there is such a connection. He is tempted because he sees that causal connection is more than arbitrary. The dichotomy between the arbitrary and the natural or necessary is too crude for Berkeley's purposes, but his allegiance to it edges him toward the conclusion that cause and effect are necessarily connected" (Winkler 1989, 129).
34. See also *TVV* 42, where Berkeley makes a similar point.
35. This impression can perhaps be explained away by the specific dialectical situation in which Berkeley finds himself in the *Theory of Vision Vindicated*, which is framed as a response to an anonymous writer, who put forward objections to Berkeley's *Theory of Vision* (for this suggestion, see Winkler 1989, 122). More generally, it might be argued that whenever Berkeley appears to conceive of causation as necessary connection, he is not speaking for himself, but instead on behalf of a (real or imaginary) interlocutor. In reply, I would like to point out that there are quite a few passages where Berkeley seems to understand causation in this way and that he nowhere explicitly distances himself from such a view.
36. This is also acknowledged by Winkler 1989, 121.
37. See Lin 2014, 165: "Early modern philosophers, nearly without exception, believe that causes necessitate their effects." Lin also stresses that early modern philosophers usually take this necessity to be "absolute or logical necessity" (Lin 2014, 165). See also Winkler 1989, 129.
38. This is also pointed out by Winkler 1989, 120–21.
39. This motivation is clear, for example, in Kendrick 2014.
40. If finite spirits really necessitate their effects, does that make them like God in this respect? In a sense I believe the answer is yes, but I do not think that we should be too surprised by this, given that Berkeley stresses the similarity of God and finite spirits (see Bettcher 2007, 67–68; Nols 2011). Of course, unlike God, finite spirits do not cause all of their own ideas.
41. See Stoneham 2006.
42. Ibid., 216 introduces the Transparency Thesis as follows: "Let us call the wider infallibility of not only the existence but also the nature of the objects of sense the 'transparency thesis.' "
43. See Hatfield 2011, 367.
44. With respect to *NTV* 12, Hatfield suggest the following weaker version of the Transparency Thesis: "[W]e need not read Berkeley as actually asserting

the principle that if he has an idea, he must know it at the time; he may be asserting the weaker principle that if he has a kind of idea, he will be able to know he does through attentive consideration of his ideas in good circumstances for introspection" (Hatfield 2011, 367, n. 21).

45. In *PHK* 137, Berkeley writes: "That an idea which is inactive, and the existence whereof consists in being perceived, should be the image or likeness of an agent subsisting by it self, seems to need no other refutation, than barely attending to what is meant by those words."
46. For a detailed presentation and discussion of Berkeley's doctrine of notion, see Cummins 2005, 204–9.
47. Bolton 1987, 68.
48. See *PC* 660/*W* 1:80.
49. Winkler says this, too, but only with respect to God: "There is a necessary connection between Berkeley's God and his effects, but the connection does not license the a priori inference for which the correspondent hopes" (Winkler 1985, 125).

Literature

Airaksinen, Timo. "Light and Causality in Siris." In *Berkeley's Lasting Legacy: 300 Years Later*, edited by Timo Airaksinen and Bertil Belfrage, 91–118. Cambridge: Cambridge Scholars Press, 2011.

Bennett, Jonathan. *Locke, Berkeley, Hume: Central Themes*. Oxford: Clarendon Press, 1971.

———. *Learning from Six Philosophers. Volume 2*. Oxford: Clarendon Press, 2001.

Bettcher, Talia Mae. *Berkeley's Philosophy of Spirit: Consciousness, Ontology and the Elusive Subject*. London: Continuum, 2007.

Bolton, Martha. "Berkeley's Objection to Abstract Ideas." In *Essays on the Philosophy of George Berkeley*, edited by Ernest Sosa, 61–81. Dordrecht: Springer, 1987.

Cummins, Phillip D. "Berkeley on Minds and Agency." In *The Cambridge Companion to Berkeley*, edited by Kenneth Winkler, 190–229. Cambridge: Cambridge University Press, 2005.

Downing, Lisa. "George Berkeley." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, 2013, Spring ed. https://plato.stanford.edu/archives/spr2013/entries/berkeley.

———. "Malebranche and Berkeley on Efficient Causation." In *Efficient Causation: A History*, edited by Tad Schmaltz, 198–230. New York: Oxford University Press, 2014.

Garrett, Don. *Cognition and Commitment in Hume's Philosophy*. New York: Oxford University Press, 1997.

Hatfield, Gary. "Transparency of Mind: The Contributions of Descartes, Leibniz, and Berkeley to the Genesis of the Modern Subject." In *Departure for Modern Europe: A Handbook of Early Modern Philosophy (1400–1700)*, edited by Hubertus Busche, 361–75. Hamburg: Meiner, 2011.

Jolley, Nicholas. "Berkeley and Malebranche on Causality and Volition." In *Causality and Mind: Essays on Early Modern Philosophy*, 242–53. Oxford: Oxford University Press, 2013.

Kendrick, Nancy. "The 'Empty Amusement' of Willing: Berkeley on Agent Causation." *Berkeley Studies* 25 (2014): 3–15.

Lee, Sukjae. "Berkeley on the Activity of Spirits." *British Journal for the History of Philosophy* 20, no. 3 (2012): 539–76.

———. "Occasionalism." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, 2016, Winter ed. https://plato.stanford.edu/archives/win2016/entries/occasionalism/.

Lin, Martin. "Efficient Causation in Spinoza and Leibniz." In *Efficient Causation: A History*, edited by Tad Schmaltz, 165–91. New York: Oxford University Press, 2014.

McDonough, Jeffrey K. "Berkeley, Human Agency and Divine Concurrentism." *Journal of the History of Philosophy* 46, no. 4 (2008): 567–90.

Nols, Carmen. *Zeichenhafte Wirklichkeit: Realität als Ausdruck der kommunikativen Präsenz Gottes in der Theologie George Berkeleys*. Tübingen: Mohr Siebeck, 2011.

Pitcher, George. "Berkeley on the Mind's Activity." *American Philosophical Quarterly* 18, no. 3 (1981): 221–27.

Saporiti, Katia. *Die Wirklichkeit der Dinge: Eine Untersuchung des Begriffs der Idee in der Philosophie George Berkeleys*. Frankfurt a. M.: Klostermann, 2006.

Stoneham, Tom. *Berkeley's World: An Examination of the Three Dialogues*. Oxford: Oxford University Press, 2002.

———. "Berkeley's 'Esse is Percipi' and Collier's 'Simple' Argument." *History of Philosophy Quarterly* 23, no. 3 (2006): 211–24.

Winkler, Kenneth. "Berkeley on Volition, Power, and the Complexity of Causation." *History of Philosophy Quarterly* 2, no. 1 (1985): 53–69.

———. *Berkeley: An Interpretation*. Oxford: Clarendon Press, 1989.

15 Hume and "Reason as a Kind of Cause"

P. J. E. Kail

1. Introduction

David Hume's philosophy figures prominently in the themes of this volume. His account of the causal relation—or, rather, a certain understanding of Hume's conception of the causal relation[1]—is the primary reference point of contemporary discussion. I shall not, however, discuss Hume's view of causation here but, rather, examine the role it plays in Hume's account of cognition, or, more specifically, his account of probable or causal reasoning.[2] When it comes to probable reason, or what is now referred to as "induction," Hume is famously supposed to maintain that inferences to the unobserved drawn on the basis of prior experience are entirely lacking in epistemic merit. He holds that we do, as a matter of psychological fact, draw such inferences, but epistemically speaking they are as good as basing one's belief in the unobserved on, say, looking at the disposition of chicken entrails as a Roman haruspex would, or on the patterns of tea leaves as a tasseographist would. No doubt there are undergraduate classes that still present Hume as reaching this skeptical conclusion, and there is, of course, an independent and philosophically interesting problem of induction, but the drift of Hume scholarship is away from interpreting his discussion of such inferences as skeptical in just this sense.[3] I shall not rehearse the various different ways from which scholarship departs from this picture, though I shall say a few words about it at the end of this chapter.[4]

To repeat, the relevant sense of "cognition" that is the concern of this chapter is causal inference. We form beliefs about the unobserved on the basis of the causal relation. The first thing I want to note is that there is an apparent contradiction about the causation of such inferences in the *Treatise*. Hume writes that our "reason shou'd be consider'd a kind of cause, of which truth is the natural effect" (T 1.4.1.1; SBN 185).[5] Reason causes something, namely beliefs about the unobserved based on observation and memory, beliefs that are the products of inferences that are constitutive of reason. But much earlier in the work, in the section entitled "Of the inference from the impression to the idea" (T 1.3.6), Hume

asks a question about the nature of such inferences: whether "we are determin'd by reason to make the transition, or by a certain association and relation of perceptions" (T 1.3.6.4; SBN 88–89), and his answer is that we are *not* determined by reason. If we take "determined" as a synonym for "caused"—and, as we shall see, the context of the discussion suggests strongly that we do—then it seems that reason is *not* a kind of cause. Instead such inferences are the product of the association of ideas. So, in connection with the twin themes of cognition and causation, we have Hume, on the one hand, stating that a form of cognition has causal upshot, or, stronger, is causally constituted, and, on the other hand, stating that probable reason is not a cause.

In what follows I shall argue that when Hume concludes that reason "does not determine us" his concern is with a particular conception of the faculty of reason which he rejects. This conception I shall label the "rational causation model." The demands of the rational causation model are impossible to meet, and so reason so understood cannot be a cause. Instead, Hume replaces the fantasy of the rational causation model with what I shall call the "mechanical model." I will first articulate the rational causation model in the company of Leibniz. The discussion, I hope, will (a) illuminate some of the texts in the *Treatise* that have been taken to support Hume as an "inductive skeptic," and (b) tell us something about the nature of Hume's target and his "naturalism."

2. Leibniz and the Rational Causation Model

In this section I shall draw heavily on texts from Leibniz to articulate a model of reason and its role in inference which I believe Hume rejects. I make absolutely no claim that Hume is directly responding to Leibniz, not least because the texts I use were not available to Hume when he composed the *Treatise*. I draw on Leibniz because he expresses the position I have in mind in a spectacularly compact and self-conscious manner.

Leibniz writes in the *New Essays* that:

> A *cause* in the realm of things corresponds to a *reason* in the realm of truths, which is why causes themselves . . . are often called "reasons". . . . [T]he faculty which is aware of this connection among truths i.e. the faculty for reasoning, is also called "reason". . . . [T]his faculty is exclusive to man alone and does not appear in any other animals on earth.
>
> (NE 475)[6]

The first thing to note is that causal relations constitute reasons, or, more precisely, the grasp of a causal relation constitutes a reason. One sense of "cause or reason" lies, as one might expect from Leibniz's modernization of Aristotle, in the connection between teleology and the *dia ti* or "why"

of causal questions which are answered in terms of the "for the sake of." In part of the passage just quoted Leibniz does say that causes and "especially final causes" are called "reasons" but that is not the exclusive sense of "cause" in this passage. If we confine ourselves to efficient cause then knowledge of a cause would constitute a reason or ground for a belief about the unobserved. Suppose that fire is the cause of pain. If I know that fire is the cause of pain then this knowledge provides me a reason to think that were I to put my hand in the fire I would be in pain. My inference—my acquisition of the belief that I will be in pain—would constitute a reasoned inference because it would be made in light of a connection between the objects of belief. So the faculty of reason grasps causal relations and hence grasps reasons and inferences are drawn in light of them.

Contrast this claim with what is said in the following paragraph:

> Beasts pass from one imagining to another by means of a link between them which they have previously experienced. For instance, when his master picks up a stick the dog anticipates being beaten. . . . This could be called "inference" or "reasoning" in a very broad sense. But I prefer to keep to accepted usage, reserving these words for men and restricting them to the knowledge of some *reason* for perceptions' being linked together. Mere sensations cannot provide this: all they do is to cause one naturally to expect once more the same linking that has be observed previously.
>
> (NE 143)

A number of things can be garnered from this passage. First, there is a form of inference which is merely "natural" in the sense that experience of As being followed by Bs produces an expectation of B when A is perceived. Anyone with the most superficial acquaintance with Hume's principles of association will recognize that this is precisely the associative principle of causation that is central to his philosophy. The second thing is that such sequences are not properly reasoning because such inferences are not made in the light of knowledge of the reason for the linkage—their causal relation. Now, presumably because Leibniz writes that all mere sensations do is "cause one naturally" to expect, he must have in mind a view of reasoned inference whereby the knowledge of the reason—a grasp of the causal relation—itself figures in the psychological transition from cause to effect. It is not merely that the epistemic agent happens to know that *a* is causally connected to *b* but draws the conclusion by association. It is rather that the conclusion is produced by the grasp of the connection. Let us call that, for want of a better term, "rational causation." We can express this in the following way. Reason is a faculty—reason$_{F-}$ which grasps relevant connections—reasons$_{R}$—and in light of such a grasp produces a cognitive state, a product of a reasoned

inference—reasoning$_I$. The activity of reasoning—reason$_A$—is the activity of discerning some connection and arriving at a conclusion in its light.

There is something appealing in this picture. Suppose one believes that *p* and has also the belief that *p* implies *q*. Suppose further, that one comes to believe that *q*, but that the conditional belief, though something that one possesses, makes no contribution whatsoever to the acquisition of the belief that *q*. It is simply the causal consequence of the belief that p. One's doxastic states might be *in line* with one's reasons (if we take that conditional belief to constitute a reason), but one might be strongly disinclined to say that one *reasoned to* the belief. To put it another way: one was in line with the rule, but didn't obey it.

As well as its plausibility, the picture as it stands doesn't look too demanding. An inference is a product of reason just in case it is made via a grasp of a reason for thinking that *a* and *b* are causally connected. But Leibniz's further thoughts reveal something that is actually incredibly demanding. First, it is not the case that one need merely to *suppose* that *a* and *b* are causally connected. Leibniz uses instead the factive "aware." It might be thought that one can't put too much weight on the single use of the term "aware," but Leibniz says something further which shows that mere supposition of a causal connection is insufficient to qualify as reason for him. Consider the following passages:

> I showed earlier that the shadow of reason which can be seen in beasts is merely an expectation of similar issue in a case which appears to resemble the past, *with no knowledge of whether the same reason obtains*.
>
> (NE 475, my emphasis)

> Mere sensations . . . [only] cause one naturally to expect once more the same linking that has be observed previously, *even though the reasons may no longer be the same*.
>
> (NE 143, my emphasis)

> The thought sequences of beasts are only a shadow of reasoning, that is, they are nothing but a connection in the imagination—a passage from one image to another; for when a new situation appears similar to its predecessor, it is expected to have the same concomitant features as before, as though things were linked in reality just because their images are linked in the memory. It is true, moreover, that reason counsels us to expect ordinarily that what we find in the future will conform to long experience of the past; but even so, this is no *necessary* and *infallible* truth, and can fail us when we least expect it to, *if there is a change in the reasons maintaining it*.
>
> (NE 51; my emphasis, last phrase)

The first thing to note in these passages is a reference to the idea of the future resembles the past. If we cannot tell that the *same* reason obtains, then we cannot know that the future will resemble the past. What Leibniz is thinking here is that manifest regularities express underlying natures, which are themselves causes or reasons, and the resemblance of the future to the past is determined by those natures. The course of nature depends crucially on the natures of objects, natures that are causal powers that are partly constitutive of those very objects. Now, why our expectation that the future will resemble would fail when there is a "change in the reasons maintaining it" is because those causes or reasons are partly constitutive of objects. If the nature of A changes, then so do the effects that we supposed A to have. What it is for an A to be, precisely, A is partly constituted by its production of B.

This significance of this—aside from the fact that Hume explicitly considers this possibility, as we shall see—is that Leibniz's view is symptomatic of the assumption that causal relations are intimately bound to the maintenance of laws of nature. Nature is uniform—it embodies laws of nature—and reason's knowledge of causes ultimately requires uncovering just what maintains this uniformity. There were a number of different models of what underwrites such uniformity. One, the occasionalist model, holds that since the only conceivable necessary connection holds between God's will and its consequences, uniformity is underwritten by His will. Others, like Leibniz's, for various reasons, wanted something more substantial, and so maintained that uniformity is underwritten with the addition of second causes. In his case, we have substances with individual essences which unfold as a form of non-transeunt causation. This is one version of a general conception essentialism to which Hume often alludes. Spinoza takes uniformity to be the rational unfolding of God-or-Nature. Given this general connection between the uniformity of nature and the relation of causation, then, any putative claim of reason's capacity to discover causes rests on the assumption of the uniformity of nature. Leibniz's quite extraordinary demand that any inferences made without a grasp of what underpins the course of nature do not constitute reason is, it seems to me, results from a combination two things. One is the plausible thought that a reasoned inference is one made in light of some *supposed* connection between *a* and *b* in contrast to the unmediated mental transition from the thought of *a* to the thought of *b*. The second is that what constitutes *a reason* is not the mere supposition of a connection but knowledge that the two are connected. Hence his view that experience underdetermines causal structures leads him to deny that experienced-based inferences constitute reason: the hunt for knowledge of causes is the hunt for what underwrites the uniformity of nature. Certainly Hume takes the opposite position as generally a matter of grasping essences, but he is fully aware of other positions in circulation, and especially the occasionalism of Malebranche.

3. Hume, Reason, and the "Operations of the Understanding"

As I stated above, I make no claim of any direct textual connection between Hume and Leibniz. Nevertheless, before we proceed, I want to draw the reader's attention to what Hume says in the *Abstract*, namely that he reports Leibniz as saying that in "common systems of logic" when "explain[ing] the operations of the understanding" philosophers are "too concise when they treat probabilities" (*Abstract* 4; SBN 646–47). Notice first that there is no sharp distinction drawn between the normative ("logic") and the cognitive (the "operations of the understanding"). They are intimately connected, and, indeed, he says that the "sole end of logic is to explain the principles of operations of our reasoning faculty, and the nature of our ideas." This interpretation of the cognitive and the normative pervades the discussion of T 1.3.6 which is traditionally taken to be Hume's statement of inductive skepticism, as we shall see.

Before we get to that section, we begin with some general remarks regarding Hume's introduction of the topic of reason in the *Treatise*. Hume tells us that "[a]ll kinds of reasoning consist in nothing but a *comparison*, and a discovery of those relations . . . which two or more objects bear to each other" (T 1.3.2.2; SBN 73). Relations fall into two categories, constant and inconstant. The former comprises those relations which supervene on the intrinsic properties of ideas, such that if there is a change in those properties, there is a change in the relation. These relations include resemblance, degrees in quality, contrariety, and proportions of quantity and number. With respect to the first three, the discovery is more a matter of inner perception or "intuition." One can simply "see," for example, that one shade of red is deeper than another. Some of the relations that constitute proportions of quantity and number, when very basic, are able to be discovered through intuition, but most of them are discovered by an activity of comparison which Hume calls "demonstration." Thus, to use Hume's own example, that from "the idea of a triangle, . . . we discover the relation of equality, which its three angles bear to two right ones" (T 1.3.1.1; SBN 69). The step-by-step discovering of these relations also forces the doxastic act of assent. In cases of demonstration and intuition "the person who assents, not only conceives the ideas according to the proposition, but is necessarily determin'd to conceive them in that particular manner" (T 1.3.7.2.3; SBN 95).

This, Hume's account of "demonstrative reason," is, to put it mildly, somewhat underdeveloped, and I shan't say much more about it here (if he chides other philosophers for being "too concise" in their treatment of probabilities, the same could be said of his treatment of demonstration). But notice that it conforms to the rational causation model. The factive expression "discovery of relations" implies that reasoning is the discovery of epistemic grounds for inferences, or *reasons*, the grasp

of which determines consent. Demonstrative reason$_F$ grasps relations which constitute reasons$_R$ and determines a conclusion in light of this grasp—reasoning$_I$.

Let us now finally turn to probable reason. The three remaining philosophical relations are the "inconstant" ones, those which vary without any change in the intrinsic qualities of the *relata*. Only one—causation—is relevant to the topic of reason (the other two, relations of situations in time and place, and identity, are discovered by perception). Causation is the center of gravity of this part of the *Treatise* because causation is the only relation "that can be trac'd beyond our senses, and informs us of existences and objects, which we do not see or feel" (T 1.3.2.3; SBN 74). Any conclusion "beyond the impressions of our senses can be founded only on the connexion of *cause and effect*" (T 1.3.2.2; SBN 74). It is, as he says later on, the only "relation . . . on which we can found a just inference from one object to another" (T 1.3.6.8; SBN 89). Notice first the factive in the first quotation, and the positive epistemic sounding terms in the other two. Causal inference "informs" us of what we do not presently perceive, causation is that upon which inferences are "founded" and in virtue of which such inferences are "just." This makes causal relations seem like prime candidates for reasons$_R$. So the picture might seem like this: if one knows that *a* is the cause of *b*, and one is presently perceiving *a*, then the knowledge that *a* is the cause of *b*—knowledge that they instantiate that relation—provides an epistemic ground for an inference to the existence of the unperceived effect *b*. Knowing that *a* is the cause of *b* is knowledge of a *reason* for thinking that *b* will occur, given *a*. Reason$_F$ discovers causal relations, which constitute reasons$_R$. If this is the right picture, it is, nevertheless, incomplete. To complete it, we will need an account of how reason$_F$ and reasons$_R$ combine to *produce* or *determine* the psychological inference distinctive of *reasoning to* a conclusion.

This is what Hume rejects. Hume will show that the demands of the rational causation model cannot be met and hence reason so understood cannot be causally implicated in the inference. Keep in mind that the nature of the psychological inference is uppermost in the discussion. The very topic of T 1.3.6, "Of the inference from the impression to the idea" is the nature of the *inference* we draw from the impression of some object that is a cause to the idea of an object that is its effect—the "operation" of our reasoning faculty. That is, a question about the character of the mental transition from one thought to another. His first observation is that we cannot penetrate the "essences [of objects] as may discover the dependence of the one [the effect] upon the other [the cause]" (T 1.3.6.1; SBN 86).[7] Instead, we can only learn what causes what through experience. There is much hidden in this brief claim, not least Hume's claim that supposed necessary connexions are in principle undetectable, but discussion of that will take us too far away from our present topic. I shall simply record that this is itself a key divergence from many philosophy, and,

again Leibniz expresses the contrary position when he says that reason is "capable of finding unbreakable links in the cogency of necessary inferences. This . . . often provides a way of foreseeing events without having to experience sensible links between images, as beast must do" (NE 51).

Hume then considers an alternative. Having observed instances of As being followed by Bs, our memory enables us "[w]ithout any further ceremony" to "call the one *cause* and the other *effect*" (T 1.3.6.2; SBN 87). We learn, so it seems, that As cause Bs by experience. Hume's next question is how such a memory "operates" on us when we come to infer effects from causes. Does "experience produce . . . the idea [of the effect] by means of the understanding or of the imagination; whether we are determin'd by reason to make the transition, or by a certain association and relation of perceptions" (T 1.3.6.4; SBN 88–89)? This, I repeat, is squarely a question about the causation of the mental transition. He then states that "if reason determin'd us, it wou'd proceed upon that principle, *that instances, of which we have had no experience, must resemble those of which we have had experience, and that the course of nature continues always uniformly the same*" (op. cit). This has become known as the Uniformity Principle (UP), and of course, is the heart of the traditional inductive skepticism reading. Inductive grounds rest structurally on the presumption of the UP and if we have no grounds for the UP then such inferences are themselves groundless. Reason, under its demonstrative and probable guises, cannot yield knowledge of the UP. There is no discoverable constant relation among the component ideas constituting that proposition, and so it cannot be the object of demonstrative reason. Probable reason, on the other hand, is "founded on the presumption of a resemblance betwixt those objects which we have had experience, and those, of which we have had none; and therefore 'tis impossible this presumption can arise from probability." Here we get a mixture of the normative and the causal. We have the normative claim that such inferences are "founded on" the UP, and a causal claim—"'tis impossible this presumption can arise from probability" (T 1.3.6.7; SBN 90). This is clearly a claim that the UP cannot be the causal product of probable reason, a claim that is confirmed when Hume writes that the "same principle cannot be both the cause and the effect of another" (op.cit.). So the UP is not something that reason can support and so cannot enter into the causation of causal inference. The rational causation model's demands cannot be met.

At first blush, this would seem quite irrelevant to the matter at hand, namely whether reason determines us to make the transition. If causal relations are reasons$_R$, then, though we know them only by experience, one could nevertheless be so determined in light of our *a posteriori* knowledge that A is the cause of B. In other words, the rational causation model would still fit. Reason as a faculty—reason$_F$—engages in the activity of comparison and discovers relations—reasons$_R$. Once we experience

token causal relations, we can become conscious that *a* is causally related to *b*, and draw the inference in light of that awareness. Grant that causal relations are only discoverable *a posteriori*, and so our only way to gain acquaintance with such relations is our memory of their manifestations which is facilitated by association, but once we have acquired such a memory, then we are therefore aware of a relation that constitutes a reason, and so the inferences we draw in light of that awareness are genuine instances of the *reasoning*. We have, to quote Leibniz, "knowledge of some *reason* for perceptions' being linked together." Why doesn't therefore Hume allow that "reason determines" us in just this sense?

Why he doesn't—and why the UP becomes relevant—comes out when we recall just how demanding Leibniz's account of the rational causation model was. Leibniz, as we saw, denied associative transactions the status of reason because experience is consistent with changes in the underlying powers, thus underdetermining the course of nature. Hume is aware of this twist. He considers a possible response to his conclusion that reason does not determine us. Perhaps after experiencing token *a*s being followed by token *b*s we reason thus:

> 'Tis impossible that the cause cou'd have this effect, if it was not endow'd with a power of production. The power necessarily implies the effect; and therefore is there is a just foundation for drawing a conclusion from the existence of one object to that of its usual attendant.
>
> (T 1.3.6; SBN 90)

Hume meets this objection by arguing that experience reveals only clusters of sensible qualities and we have no grounds to suppose that the "same power must continue in the same object or collection of sensible qualities." Experience of any token cause is silent each time of whether the "same reason" is present. Hence reason—the faculty of comparison—"fails us in the discovery of the ultimate connection of causes and effects" (T 1.3.6.12; SBN 91). If Hume is working within the constraints of the rational causation model then reason has to grasp what underwrites the uniformity of nature since the rational causation model requires *knowledge* of the connection between A and B, something which experience does not afford. This is why the UP is the object of Hume's attention. Causation, of whatever variety, underwrites the uniformity of nature and hence knowing that nature is uniform supports causal inference between A and B. This is the case even on a regularity view of causation, the kind with which Hume is traditionally associated. The key claim to the standard reading is that tokens of "*a* causes *b*" are instantiations of a universal regularity between types A and B. Given this, reason would have to be able to discover that any two objects instantiate that relation in order to enter into the causation of the inference. But that would be equivalent to

the faculty of comparison's discovery that the future resembles the past, and we have already seen him deny that.

4. The Mechanical Model

Let me summarize what I have argued so far. Hume is interested in causal inference since causation is the only relation that takes us beyond our senses and, furthermore, the only relation that "founds" a "just" inference. What Hume says about reason as a faculty of discovery of relations initially suggested a model of a faculty, $reason_F$, which discovers causal relations that constitute $reasons_R$, and in virtue of so doing we come to a conclusion by $reasoning_I$—the rational causation model. I traced that model in Leibniz, and the connection between causation and the uniformity of nature. The intimate link between causation and the uniformity of nature explains why the uniformity of nature is central to Hume's discussion of causal inference, and his rejection of the claim that such inferences are explained by a grasp of $reasons_R$. For the faculty of comparison—$reason_F$—to discover that A is the cause of B it must be in a position to discover that nature is uniform, either by discovering what underwrites that uniformity or by discovering that A and B instantiate a universal regularity. Reason operates on the assumption that nature is uniform, and so the *assumption* that A and B are causally related. But it is not, therefore, the faculty of comparison that determines the inference we draw. Rather, though causation "be a philosophical relation" (i.e., a relation that is the object of conscious comparison) it is "only so far as it as a natural [i.e. associative] relation, and produces an union among our ideas; that we are able to reason upon it, or draw any inference from it." The crucial point is that the instantiation of a universal regularity that is tied to causal relations is "presumed" rather than a factive-implying "discovery" of reason. As Hume puts it in the *Abstract:*

> It is not . . . reason which is the guide of life, but custom. That alone determines the mind, in all instances, to suppose the future conformable to the past. However easy this step may seem, reason would never, to all eternity, be able to make it.
>
> (*Abstract* 16; SBN 652)

It is easy to see why Hume's discussion could be read as a negative evaluation of the epistemic status of such inferences. After all, he says, for example, "there be no reason to determine us to that transition" (T 1.3.6.13; SBN 92). But the crucial point here is that because the question discussed in T 1.3.6 is the causation of the inference the issue of epistemic standing is left open. What's more, Hume wording and the way he treats such inferences suggests that he holds them to have positive epistemic standing. The *Treatise* is an "attempt to introduce experimental

method of reasoning into moral subjects," which evidently presupposes that experience-based evidence has epistemic authority. Probable inference is able to "discover" objects (T 1.3.2.2; SBN 73) and "brings us acquainted with such existences, as . . . lie beyond the reach of sense and memory" (T 1.3.9.3; SBN 108). He refers to causal inferences as "just" and "conclusive," and that when one infers causally one "reasons justly and naturally; tho' that conclusion be deriv'd from nothing but custom" (T 1.4.4.1; SBN 225). But what are the grounds for such a positive epistemic appraisal such inferences?

Different commentators offer different answers, and I can't settle the issue here. Nevertheless, I shall say a few things in here. Clearly we make such inferences and clearly such inferences do not have the causal structure adumbrated in the rational causation model. Instead, reason is "nothing but a wonderful and unintelligible instinct in our souls, which carries us along a certain train of ideas" (T 1.3.15.9; SBN 179), and, as he puts in the *Enquiry concerning Human Understanding*:

> the experimental reasoning itself, which we possess in common with the beasts, and on which the whole conduct of life depends, is nothing but a species of instinct, or mechanical power, that acts in us unknown to ourselves; and in its chief operations, is not directed by any such relations or comparison of ideas, as are the proper objects of our intellectual faculties.
>
> (E 9.6; SBN 108)[8]

Rather than a distinct faculty as Leibniz conceived it, causal reason is itself simply a causal mechanism, one that does not conform to the rational causation model ("is not directed by . . . comparisons of ideas"). It is, furthermore, the very same kind of mechanism that is operative in non-human animals. This sits perfectly with what I take to be a key aspect of Hume's naturalism. Human beings are part of the natural world in the sense that they are not different in kind from the rest of the animals. The "whole sensitive creation . . . [e]very thing is conducted by springs and principles, which are not peculiar to man, or any one species of animals" (T 2.2.12.1; SBN 397). Recall that Leibniz drew a sharp contrast between humans and animals, and that the faculty of reason "is exclusive to man alone and does not appear in any other animals on earth." Animal associative inferences are dubbed the "shadow of reason." Since, however, the demands of the rational causation model cannot be met, the brute mechanical model—the one that is causally responsible for such inferences—just is what probable reason is.

This makes reason a cause, but that doesn't yet explain its positive epistemic status. But if we add the claim that "reason shou'd be consider'd a kind of cause, of which truth is the natural effect" (T 1.4.1.1; SBN 185) then the possibility of a reliabilist account of the positive epistemic

standing of probable reason raises itself. The inferences of probable reason are "just" because the mechanism produces a preponderance of true beliefs over false ones. Commentators have been busy articulating such a picture in detail,[9] and I have little to add to these detailed articulations, but I will make a programmatic remark. Hume is more interested, it seems to me, in the general program of naturalizing human beings—of showing them to be nothing but sophisticated animals—than working out the details of an epistemology. Certainly, he adds "rules by which to judge of causes and effects" (T 1.3.15), which constitute normative constraints[10] on the operation of the mechanism, and which he admits are so context-sensitive they are difficult to apply, and he discusses various sources of probability, but more important than self-standing epistemological topics is the naturalization of human beings and the destruction of human exceptionalism.

Let me close with a sequence of passages from Leibniz's *Monadology* which represent a perfect foil against which to understand Hume's project. Leibniz writes:[11]

> 26 Memory provides souls with a kind of connectedness, which resembles reason but must be distinguished from it. For we see that animals who have a perception of something that strikes them, and which they have previously had a similar perception are led, from the representation of memory, to expect that which has been conjoined previously, and are led to sensations similar to those they have had before. For example, when one shows a stick to dogs, they recall the pain, that is it has caused them in the past, and whine and run off.

This is, to all intents and purposes, an account of the associative relation of causation, the mechanism that is the basis of probable reason.

Leibniz continues:

> 27 The potent imagination that strikes and moves them, comes either from the magnitude (*grandeur*) or from the number of the preceding perceptions. For often a vivid (*forte*) impression has in a moment the effect of long *habit*, or of many moderate perceptions oft repeated.

This is, in effect, an epitome of Hume's account of belief. Impressions are the source of the forceful ideas that constitute belief, a force that comes either directly or through the operation of custom (cf. T 1.3.8).

Next comes this:

> 28 Men function like beasts insofar as the connections among their perceptions come about only on the basis of memory, resembling empirical physicians who have mere practice without theory. We are all merely empiricists with regard to three-fourths of our actions. For

> example, when we expect it to be day tomorrow, we are behaving as empiricist, because until now it has always happened thus.

Leibniz admits that the "shadow of reason" operates in us. But he adds:

> 29 But it is the knowledge of the necessary and eternal truths which distinguishes us from mere animals, and gives us *reason* and the sciences, raising us to knowledge of ourselves and of God. It is this in us which we call the rational soul or *mind*.

This is an expression of human exceptionalism. Hume's "skeptical" assault is an attempt to delete this last passage and see human reason in terms of the others.[12]

Notes

1. The standard view is that Hume holds the metaphysics of causation reduces to regular succession, though this has not gone unchallenged.
2. Of course, his conception of the role of causation in cognition isn't entirely independent of his conception of causation itself, and I shall note where it is not at the relevant juncture.
3. See e.g. Garrett 1997; Owen 1999; Loeb 2006; Schmitt 2014.
4. My focus will be on *A Treatise of Human Nature*, but I will also make some references to *An Enquiry Concerning Human Understanding*.
5. References by book, part, section, and paragraph number to Hume 2007, and by page number to Hume 1978 (SBN).
6. Quotations for the *New Essays* are from Remnant and Bennett 1996.
7. On the intimate connection between essence and inference, see Kail 2007, chapter 4.
8. References by section and paragraph number to Hume 2006 and page numbers to Hume 1975 (SBN).
9. See in particular Schmitt 2014.
10. The correction of the first-order judgments also leads to a different kind of skepticism, discussed in "Of scepticism with regard to reason" (T 1.4.1). Discussion of this will take us too far afield.
11. Translations from Rescher 1991.
12. Thanks to Dominik Perler and Sebastian Bender for the invitation to contribute to this volume, and to the audience at the workshop in Berlin for making this a better paper.

Literature

Garrett, Don. *Cognition and Commitment in Hume's Philosophy*. New York: Oxford University Press, 1997.

Hume, David. *Enquiries*. Edited by L. A. Selby-Bigge and revised by Peter H. Nidditch. Oxford: Oxford University Press, 1975.

———. *A Treatise of Human Nature*. Edited by L. A. Selby-Bigge and revised by Peter H. Nidditch. Oxford: Clarendon Press, 1978.

———. *An Enquiry Concerning Human Understanding. A Critical Edition*. Edited by Tom Beauchamp. Oxford: Clarendon Press, 2006.

———. *A Treatise of Human Nature. A Critical Edition*. Edited by David Fate Norton and Mary J. Norton. Oxford: Clarendon Press, 2007.

Kail, P. J. E. *Projection and Realism in Hume's Philosophy*. Oxford: Clarendon Press, 2007.

Leibniz, Gottfried Wilhelm. *Monadology*. Edited by Nicholas Rescher. London: Routledge, 1991.

———. *New Essays on Human Understanding*. Edited by Peter Remnant and Jonathan Bennett. Cambridge: Cambridge University Press, 1996.

Loeb, Louis. "Psychology, Epistemology, and Skepticism in Hume's Argument About Induction." *Synthese* 152, no. 3 (2006): 321–38.

Owen, David. *Hume's Reason*. New York: Oxford University Press, 1999.

Schmitt, Frederick. *Hume's Epistemology in the Treatise. A Veritistic Interpretation*. New York: Oxford University Press, 2014.

16 Reid on Intentionality and Causation

James Van Cleve

1. Introduction

What gives thoughts their reference to things? One answer is causation: in crude first approximation, thoughts of trees are about trees because trees cause such thoughts. According to Thomas Reid, however, the intentionality or "aboutness" of mental states, including perception and conception, is not to be given any kind of causal analysis. Instead, such states must be regarded either as terms in an irreducible relation of referring, not analyzable in terms of anything else, or as "natural signs" in Ockham's sense, representing what they do in virtue of their intrinsic nature. In what follows, I expound Reid's reasons for eschewing causalism and espousing primitivism. If positing irreducible intentional relations or natural signs makes Reid a believer in magic, then a believer in magic is exactly what he is.

2. Perception and Causation

One of Reid's main philosophical aims is to defend a direct realist theory of perception—a theory in which we perceive external things like the sun and the moon without the cognitive intervention of anything else. We do not merely perceive an image or idea of the moon and infer the moon as its cause; we see the moon itself. One of the arguments for ideas as intermediaries Reid seeks to rebut is the "no action at a distance argument," which runs as follows:

1. When we perceive objects, they act upon us (or we upon them).
2. Nothing can act upon anything else at a distance.
3. Therefore, the only things we perceive are things at no distance from us—our own ideas.

In response, Reid says, "There appears no reason for asserting, that, in perception, either the object acts upon the mind, or the mind upon the object" (EIP 2.14, 176–77).[1] At first sight, that appears to be a repudiation

of causal theories of perception. On further reading, though, it becomes clear that what Reid denies is only the need in perception for a *direct* or *unmediated* causal relation between external objects and minds. A causal *chain* stretching from tree to eye and thence to the mind is something he allows and even takes for granted.[2]

So would Reid embrace after all the thesis that a perception of a tree is of a tree in virtue of being caused by a tree? No; that conclusion would be premature for two reasons. First, even if it is true that perceiving a tree is somehow enabled or effected by a causal relation to trees, it need not be true that perceiving a tree is *constituted by* causal relations or analyzable in terms of them. Second, even if perceiving a tree were analyzed in terms of causation, it might be that it is the *veridicality* of a tree perception that requires a causal analysis, not its sheer intentionality or purported reference to a tree.

Peter Kail has pointed out to me one more possible reason why someone with Reid's views might not accept a causal theory of perception. Disjunctivism is the view that what is common to veridical perceptions and hallucinatory perceptions of the same scene can only be expressed in a disjunction, such as "either I am seeing a tree or it is just as though I were seeing a tree," with no state as a common ingredient. Some contemporary direct realists adopt disjunctivism in order to fend off arguments against their view based on the existence or possibility of hallucinations. Paul Snowdon has argued that disjunctivism is incompatible with causal theories of perception (Snowdon 1988). He claims there would be something absurd about analyzing "S sees O" as "O causes a disjunctive state one of whose disjuncts is *S sees O*." If Snowdon is right, and if Reid is a disjunctivist, he would have an additional reason to reject causal theories. In my view, however, Reid is *not* a disjunctivist. He is indeed a direct realist, but disjunctivism is not the only way of securing direct realism.[3]

3. Conception and Causation

I turn now to Reid's reasons for rejecting causal analyses of *conception*, which he regards as the most general of all intentional states. I begin with four comments about what Reid means by "conception."

First, by "conception" Reid usually means the act of conceiving, not its object. Second, every conception has an object—"he that conceives, must conceive something" (EIP 4.1, 311). In other words, conceiving is an act or state with intentionality. Third, conceiving is the most pervasive of all intentional states, residing at the core of any other intentional state. For example, to imagine something is to conceive of it without believing in its actuality; to remember something is to conceive of it and believe that it occurred in the past; to perceive something is to conceive of it and believe that it exists in the present.[4] Fourth, despite its name, there need not be any *concept* in conception. The conceiving involved in

perceiving something is more like Kantian intuition than Kantian conception and more like Russellian acquaintance than Russellian knowledge by description.[5]

Now for the main topic of this section: could the intentionality or object-directedness of conception be given a causal analysis? To this question, Reid explicitly gives an answer of *no:*

> There are two prejudices which seem to me to have given rise to the theory of ideas in all the various forms in which it has appeared in the course of above two thousand years . . . The *first* is, That in all the operations of the understanding there must be some immediate intercourse between the mind and its object, so that the one may act upon the other. The *second*, That in all the operations of understanding there must be an object of thought, which really exists while we think of it.
>
> (EIP 4.2, 312)

As Reid observes, the first of the prejudices implies the second, since an object can act upon us only if it exists.

We have seen above how the first prejudice operates in the "no action at a distance" argument. As an example of how the second works, consider the following natural train of thought: I can in some sense think of centaurs; but centaurs do not exist, so I cannot really think of *them*; so when I do what is called "thinking of a centaur," what I must really be doing is thinking of a centaur *idea*, which does exist as an item in my mind. Reid rejects both of the prejudices as baseless props for the theory of ideas and thereby repudiates causal theories of intentionality.

Though causal theories of intentionality have champions on the contemporary scene (including Hilary Putnam and Jerry Fodor), there are serious objections to them with which their proponents must somehow deal. I now discuss several of them, giving special attention to objections that have a possible basis in Reid.

An objection that arises immediately is that the rays of the sun cause sunburn in me, but sunburn does not have the sun's rays or anything else as its object. To this the obvious reply is that the causal theory is not meant to apply to states across the board, but only to *mental* states, of which we may say that they have Os as their object when they are caused by Os. The follow-up objection is that itchy sensations are mental states and some itchy sensations are caused by poison ivy, but no one would say these sensations have poison ivy as their object. In Reid's view, sensations do not have *any* object; they are unique among mental states in lacking intentionality (see PFR, 9–12). The qualification needed to avoid the follow-up objection is close to hand: it is not mental states in general to which the causal theory is meant to apply, but only intentional states. If S is an intentional state of a certain kind, then S has Os as its object iff Os cause states of that kind.[6]

The causal theory having been duly qualified to avoid preliminary objections, we now turn to more serious objections. To wit: being caused by Os is neither necessary nor sufficient for an intentional state's having Os as its object. It is not necessary, because some intentional states are thoughts of abstract objects, like numbers or universals, which are often held to fall outside the domain of causation. And it is not sufficient, because whenever anything is caused by Os, it is also caused by other items upstream or downstream in the causal sequence passing through Os. Perceptions of oak trees are caused by oak trees, yes, but they are also caused by retinal images of oak trees (closer in along the causal chain) as well as by acorns (further back along the causal chain). Perceptions of oak trees are not perceptions of these more proximal or remote items.[7] Bare causation is evidently too undiscriminating to secure being about the intended thing. For this reason, there is something of an industry devoted to determining which causal relations can be held with any plausibility to be content-conferring.[8] But I pass by further discussion of problems in this vicinity to discuss arguments against causal theories that are specific to Reid.

The first argument has been offered by Todd Buras, who holds that on Reid's view, sensations are self-reflexive—they take themselves as objects.[9] If that is so, we can give the following argument:[10]

1. There are states that are of themselves.
2. Nothing can cause itself.
3. Therefore, *Y causes X* cannot in general be a necessary condition of *X is of Y*.

The argument is both valid and interesting, but I do not agree with Buras that Reid holds the reflexivity premise. When he says that sensations are unique among acts of mind in having no objects distinct from themselves (EIP 1.1:36), I think he means sensations have no objects at all, not that they are their own objects.[11]

The next argument may be put compactly as follows:

1. Intentionality is an internal relation.
2. Causation is an external relation.
3. Therefore, intentionality cannot be grounded in causation.

By an internal relation, I mean one grounded in intrinsic properties of its relata; resemblance is a paradigm case. By an external relation, I mean a relation not so grounded; distance apart in space is a paradigm case.[12] Finally, when it is said that one relation is grounded in another, it is implied that the second cannot hold unless the first also holds. Under these explications, the argument above is valid. If intentionality were grounded in causation, it could hold irrespective of the

intrinsic properties of its relata, which is contrary to the nature of an internal relation.

This, too, is an interesting argument, but I am not sure whether Reid would endorse it. I suspect he would indeed believe that intentionality is internal, as discussed further below. As for causation, it is fairly clear that he would say causation between events is external, but not so clear that he would say causation between agents and their effects is external. I say more below about the distinction between event causation and agent causation.

The next argument I wish to discuss has been advanced by Laurence BonJour; I include it here because it employs a premise there is reason to think Reid would have accepted. BonJour's target is the view that the elements of thoughts are like linguistic symbols in the following way: "their representative capacity or content is not fixed by their intrinsic character, but is instead imposed upon them from the outside by relations of some sort in which they are involved."[13] Causal theories of intentionality would be a special case. Against such theories BonJour argues as follows:

1. We have special epistemic access, perhaps even amounting to infallible knowledge, of what we are thinking of (e.g., frogs rather than frying pans).
2. We could not have such access if the contents of our thoughts were determined by the causal relations of the thoughts to objects in the world.
3. Therefore, the content of our thoughts is not determined by their causal relations to objects in the world.

Ryan Nichols conjectures that Reid would approve of this argument, and he notes that he would certainly have endorsed its first premise.[14] To rebuff the view that when we think of a centaur what we are really thinking of is the *idea* of a centaur, Reid says that what I conceive of in conceiving a centaur is

> not the image of an animal—it is an animal. I know what it is to conceive an image of an animal, and what it is to conceive an animal: and I can distinguish the one of these from the other without any danger or mistake.
>
> (EIP 4.2, 321–22)

If we generalize from the example, we may attribute to Reid the view that we have infallible knowledge of what we are thinking about.[15] That rules out causal theories.

What is *not* ruled out? What sort of theory *would* allow us infallible knowledge of the contents of our thoughts? BonJour claims we can have infallible knowledge of something provided it is *necessitated* by the

intrinsic properties of our thoughts. One of the theories of content he considers as meeting this desideratum posits universals such as *of-a-frog-hood* and says they are instantiated by thoughts in virtue of their intrinsic properties. This theory is in the same vicinity as the theory of natural signs to be sketched below.

The last argument I wish to discuss is based on Reid's extraordinary views about the nature of causation. To put it starkly, a real cause must know its effect. In his scheme of things, there are two types of causation, agent causation and event causation, or as he normally calls them, efficient causation and physical causation. Events cause other events when they are succeeded by them in accordance with the laws of nature, which are rules followed by God. Agents cause events when they have the power to produce them and exert this power. Agents exert their power only by willing that certain things happen, and no one can will anything without having a conception of the thing willed. It follows that events are agent-caused only when the agent has a conception of them.

Reid sometimes says that only agent causation is causation in the "strict and philosophical" sense of the term, physical causation being such only in a "lax and popular" sense (letter of 1786, quoted in PFR, 378). Be that as it may, he holds that event causation presupposes agent causation in the following way: whenever any event follows upon its normal physical cause, it does so because God or some other agent has made it happen in such a way as to conform with the laws of nature. Moreover, every event has an agent cause, whether it also has a physical cause or not. It is a consequence of this scheme of things that nothing ever happens that was not caused through some being's understanding and will.[16]

How do the foregoing views about causation bear on causal theories of intentionality? As I now argue, they rule them out. *No one who holds a cognitive theory of causation can also hold a causal theory of cognition (or intentionality).*

The italicized incompatibility theorem is easy to see in regard to the most simple-minded versions of the two kinds of theory, namely,

Cognitive theory: x causes y only if x cognizes y.

and

Causal theory: c cognizes o only if o causes c.

If we assume that c cognizes o, it will follow from the pair of theories that o also cognizes c. If we assume that x causes y, it will follow from the pair of theories that y also causes x. In other words, cognition and causation will both be necessarily symmetric relations, an implausible enough result to prove the combination of theories impossible.

Reid's cognitive theory of causation is not so simple minded as the one above. If e is an event cause of f, what follows in accordance with Reid's theory is not that e cognizes f, but that there is some agent who cognizes f when e happens and causes f in the agent-causal way. So although e itself need not cognize f, there must be on the part of some agent a cognition of f, call it cog(f), and that is enough to make trouble when joined with a causal theory of cognition. Cog(f) can be what it is, a cognition of f, only if f causes cog(f). That causal relation can hold only if there is a cognition of cog(f), which we may write as cog(cog(f)). Cog(cog(f) can be what it is only if cog(f) causes cog(cog(f)). That causal relation can hold only if there is a cognition of cog(cog(f)), namely, cog(cog(cog(f))). We have launched an infinite regress, which is vicious not simply because it is infinite or because it is implausible that there are cognitions of ever-increasing complexity. It is vicious because cognition (or intentionality—no further aspect of cognition is relevant) is supposed to be *grounded* in causality, in which case what we have here is a regress to grounds, grounds of their grounds, and so on *ad infinitum* with no ultimate grounds. In other words, we have violated the requirement that the grounding relation be well founded—that it bottom out in something fundamental.[17] The combination of a causal theory of intentionality with an intentional theory of causation gives rise to a metaphysical impossibility.

We have canvassed four possible Reidian arguments against causal theories of intentionality—the arguments from the reflexivity, internality, and accessibility of intentionality and the argument from the intentionality of causation. The last two features are clearly Reidian and arguably or demonstrably incompatible with a causal theory of intentionality.

4. Intentionality as an Irreducible Relation

I turn now to two positive alternatives to causal theories that might be attributed to Reid. Anything said on this score must be largely conjectural, as Reid tells us very little about the positive nature of intentionality. This is not surprising for someone who regards intentionality as a fundamental feature of the world, not susceptible of analysis in terms of anything deeper.

The first alternative is that intentionality is a sheer relation between minds or mental acts and objects, not reducible to any other relations or to any features of either relatum. Theories along these lines were advocated by Moore and Russell in the early years of the twentieth century. In Russell's theory, we adequately characterize an experience when we specify a subject, an object, and a relation between them; there is no need to bring in what Meinong called "content," an intrinsic feature of the experience or its subject.[18] In Moore's version, experience is totally transparent in the sense that everything an experience is, it owes to its object;

it has no character not contributed by the object.[19] For neither Moore nor Russell is there such a thing as what subsequent philosophers have called "mental paint," an intrinsic feature of the experience itself.[20]

An objection to this view—as well as to any view that makes intentionality a relation of any sort—is that the object of an intentional act need not exist. I can imagine centaurs, hallucinate daggers, and search for fountains of youth, even though none of these things exists. How then can I be intentionally related to them?

Reid has an answer: I can because I am. He holds that it is plain common sense to acknowledge (i) that I sometimes think of centaurs and (ii) that centaurs do not exist. He does not hesitate to draw the conclusion that I sometimes stand in cognitive relations to nonexistent objects:

> Conception is often employed about objects that neither do, nor did, nor will exist. This is the very nature of this faculty, that its object, though distinctly conceived, may have no existence.
>
> (EIP 4.1, 311)

Since he believes that there are nonexistent objects and that they can be terms in relations, he is sometimes touted as a Meinongian before Meinong.[21]

Reid thus has the wherewithal to answer one objection to the pure relational view. Nonetheless, I am not sure that he would have accepted it. I suspect that he would be sympathetic to the following objection to it, which I have raised elsewhere:

> Suppose the . . . character of an experience is determined by a relation of the experience or the experiencer to some object. . . . On that supposition, any change in the quality of your experience is a relational change in you. If you stop having one kind of experience and start having another (as when you pass from seeing red to seeing green), all that changes is *which objects you are related to*. You yourself do not change in any intrinsic way, any more than you change when the red car next to you in a line of traffic is replaced by a green car. This is a consequence I find strange and counterintuitive. It seems to me that a change in what I perceive is ipso facto a change in *me*—that I am different in some *intrinsic* way when I stop seeing red and start seeing green.
>
> (PFR, 298)

It is because I think he might find this reasoning attractive that I surmised above that he would regard intentionality as an internal relation.

On the other hand, Reid would certainly deny the existence of *one* internal relation between conceptions and their objects, namely, resemblance (which was often thought an essential ingredient of the intentional or representational relation in his day). He explicitly denies that there is

any resemblance between the sensations that make us conceive of hard, extended things and those things themselves—sensations are neither hard nor extended (IHM 5.6–7). Well, conceptions are not hard or extended either—they can be *of* hard and extended things without resembling them. One of Reid's interpreters, Lewis Powell, has gone further and suggested that thoughts of external things, far from being like paintings inside the mind, are not even states, but relations.[22]

Reid does give one hint that he would disapprove of the pure relational theory. He says that when we conceive of something nonexistent, the features of the object are entirely dictated by how we conceive it to be (EIP 5.3, 371–72; EIP 6.3, 440). A genuine believer in conception as a sheer relation ought to say the opposite—that relation to the object is what makes the conception be as it is.

5. Intentionality as a Property of Natural Signs

The second positive alternative I wish to consider is that intentional states are natural signs in a sense expounded by William of Ockham. Terms in spoken or written language have their signification by convention, but according to Ockham, mental terms or concepts have their signification by nature. And according to Laird Addis, who titles his study of intentionality in honor of Ockham, "An entity is a *natural sign* if, by its very nature, it represents some other entity or would-be entity, that is, if it is an *intrinsically intentional entity*" (1989, 29).[23]

The contrast with linguistic signs helps bring out one way in which natural signs are natural. A given sound such as "dog" might have signified anything, and dogs might have been signified by any sound, "btfsplk" as well as "dog" or "chien." By contrast, it is hard to see how that mental state which is my current thought of dogs could have signified my mother or the number two. Thoughts represent in virtue of their intrinsic nature in a way in which linguistic signs do not.

The view I am now articulating is a view squarely of the sort disparaged by Hilary Putnam as a *magical theory of reference* and contrasted by him with causal theories of reference.[24] He characterizes magical theories in two ways, more or less indifferently: as theories that hold that signs represent what they do *intrinsically*[25] and as theories that hold that signs represent what they do *necessarily*.[26]

It is worth pausing to clarify the relation between these two modifiers, as they are not in all contexts equivalent. A relation that holds intrinsically between its relata is an internal relation in the sense I characterized in Section 2, namely, a relation that holds in virtue of intrinsic features of the relata taken separately. There are relations that hold intrinsically in this sense, but not with necessity. An example is the relation of resemblance in color between two apples, which holds because they are both red, or both green, or both whatever, but which does not hold

necessarily, since one of the apples might rot and turn brown.[27] Conversely, there are relations that hold necessarily (or at least necessarily given the existence of the relata), but without supervening on any intrinsic features of the relata. One example would be the membership relation between Socrates and the set {Socrates}, which holds necessarily (at least so long as Socrates exists), but does not hold between an intrinsic twin of Socrates and {Socrates}. Another example would be the relation of greater-than between the numbers three and two, assuming a structuralist view of numbers according to which they have only relational features and no intrinsic features.[28]

What kind of magic is involved, then, in a natural sign theory—reference relations that hold intrinsically or reference relations that hold necessarily? My sense is that intrinsicality is what its proponents have foremost in mind. But if the bearers of intentionality are items that have their intrinsic properties essentially, necessity would be a corollary.[29]

Is there any reason to attribute a magical or natural sign theory to Reid? It is striking that he uses both the phrases "natural signs" and "natural magic" in characterizing his own views. It turns out, however, that what he calls natural signs are not natural signs in Ockham's sense.

Reid recognizes three classes of natural signs, exemplified by (i) smoke as a sign of fire, (ii) facial features as signs of certain mental states, and (iii) certain tactile sensations as signs of hardness or extendedness (IHM 5.3, 59–60).[30] In all three classes, there is a lawful correlation between sign and thing signified—that is the naturalness, contrasting with what obtains in the case of conventional signs. In the first class, the lawful correlation must be learned inductively. In the second class, the belief in the correlation is innate, not learned. In the third class, the very conception of the object (e.g., extendedness) is innate. Reid says the signs in this class are items "which, though we never before had any notion or conception of the thing signified, do suggest it, or conjure it up, as it were, by a natural kind of magic" (IHM 5.3, 60).

But none of the signs in Reid's three classes is a natural sign in Ockham's sense, because none is a bearer of intentionality. In particular, the sensations of the third class are not bearers of intentionality, since as was said above, Reidian sensations are not *of* anything. Pains do not have objects, and "what we have said of pain is applicable to every other mere sensation" (IHM 6.20, 168).

Natural signs are called signs only because they serve as such for beings who have intentional states directed at the significata.[31] A sign S is not a sign of Os unless someone who can think of Os interprets S as a sign of Os. (Which is not to say that the ability to think of Os is a *pre*-condition of S's signifying it; on the contrary, with natural signs of the third class, it is the occurrence of the sign that triggers the first conception of the thing signified.)

The last point is the basis of an argument Reid gives in one of his commencement orations for the thesis that signs in a book cannot be models

of intentional relations because they *presuppose* intentional relations. He asks whether ideas can represent things in the manner that words and writings do, and his answer is No:

> For who will interpret this book for us? . . . If you address someone in a foreign language, perhaps your words are symbols as far as you are concerned, but they mean nothing to him. Symbols without interpretation have no value.
>
> (Reid 1989, 62)

Reid's point brings to mind an infinite regress seemingly incurred by the views of C.S. Peirce.[32] Peirce said that a sign signifies an object only through the offices of a third thing, the "interpretant," and he went on to say that the interpretant *is itself a sign*. Thus is begotten an infinite regress (or perhaps a circle) of interpretants. Reid would accept the first Peircean premise, but reject the second. The interpretant for Reid is not a sign that needs interpretation, but something that represents the object on its own. And in rejecting Peirce's second premise, he takes a step toward believing in natural signs—things that are of other things by their own nature and without any mediation.

But only a step. Addis takes the absurdity of a regress like Peirce's as a decisive dialectical argument for the existence of natural signs in his Ockhamist sense (57–65). In fact, what it establishes is only something weaker—the existence of entities that represent without the help of other representers. It does not establish the existence of entities that represent by virtue of their own intrinsic nature. To reach that conclusion, one would have to show as well that representation cannot be reduced to something extrinsic to the representer, such as causation or nomological correlation. One would have to investigate the prospects of forging a causal theory immune to the various objections I mentioned above.

As for the "natural magic" that Reid accepts with natural piety, what he so characterizes is a purely nomological relation between something nonintentional (a sensation) and something intentional (a conception). It is no more magical than any other law of nature. If there is anything magical in his view, it lies not in the relation between the sensation and the conception, but in the relation between the conception and its object.

Reid holds that the signification relation between sensations and what they signify for us is arbitrary from a metaphysical standpoint, since the laws of nature have no ground but God's will (IHM 6.21, 176). We might have been so created that hardness was indicated by certain smell sensations rather than by tactile sensations (IHM 5.2, 57; see also IHM 6.21, 176). At first glance, this point may appear to be a repudiation of natural signs in Ockham's sense, but it is not. The key once again is that sensations are nonintentional. For all that has been said, items that *are* intentional—namely, conceptions—have their objects intrinsically and

necessarily, and thus by virtue of magic in Putnam's sense. So, although Reid's language of natural signs and natural magic does not betoken acceptance of a view like that of Ockham and Addis, he has sympathies lying in that direction, and none of his views rule it out.

6. Superinternal Relations

Addis makes the following claim about the relation between a natural sign and its object: it is the only relation in nature that is such that the very existence of one relatum guarantees that the relation holds between it and the other relatum (97).[33] A remarkable feature indeed!

The possibility of relations with this feature has been broached in recent metaphysics under the name "superinternal relations." According to Karen Bennett, who I believe coined the term, a superinternal relation is one in which the existence and intrinsic nature of one relatum guarantees the existence of the relation and of the other relatum (Bennett 2011). In an ordinary internal relation, what suffices for *aRb* is *Fa* and *Gb*, F and G being intrinsic properties. In a superinternal relation, *Fa* alone is enough. Her candidate for a superinternal relation is the grounding relation: when X grounds Y, the existence of X (and perhaps its having the intrinsic nature it does) grounds both the existence of Y and X's grounding Y. Ross Cameron has advanced two further alleged cases: the relation of membership between *a* and {*a*} and the relation of exemplification between particulars and universals (Cameron 2014). The existence of any item guarantees the existence of its unit set and its membership in that set; a thing's being red guarantees the existence of the universal Redness and the thing's standing in the exemplification relation to that universal.[34]

I am tempted to press a dilemma against the very idea of a superinternal relation. If the far relatum is an entity in its own right, necessarily generated by the existence of the near relatum, we have a violation of Hume's dictum that there are no necessary connections between distinct existences. I believe this dictum is true when interpreted as I believe Hume meant it: it is never the case that the existence of one thing, *a*, metaphysically necessitates the existence of another thing, *b*, unless *b* is a part or constituent of *a*. If, on the other horn, the far relatum is nothing over and above the near relatum, why should we speak of a relation at all? Well, identity is a relation, you may say, and it involves only one object. But identity is not the relation that is supposed to hold between member and set, thing and property, thought and object.

Nonetheless, I do not close the door on superinternal relations altogether. They are puzzling, but so is intentionality itself.

There is a remark in Reid suggestive of superinternal relations. It is a law of our constitution, he tells us, that sensations induce us to believe

not only in their own existence, but in the existence of a sentient mind whose sensations they are. About this he says:

> It is the received notion of philosophers, that our notions of relations can only be got by comparing the related ideas: but, in the present case, there seems to be an instance to the contrary. It is not by having first the notions of mind and sensation, and then comparing them together, that we perceive the one to have the relation of a subject or substratum and the other that of act or operation: on the contrary, one of the related things, to wit, sensation, suggests to us both the correlate and the relation.
>
> (IHM 2.7, 7–38)

Structurally, that seems parallel to what goes on in the case of superinternal relations: from one relatum is begotten both the other relatum and the relation. But there is a crucial disanalogy as well. The "begetting" in the case of superinternal relations is *generating*, whereas in Reid's case it is *giving us the notion of*, and the latter relation may not track the former.

7. Conclusion

I have canvassed several objections to causal theories of intentionality, some of them with a distinctive basis in Reid. I have sketched two possible alternatives to causal theories—intentionality as an irreducible relation and intentionality as rooted in natural signs. I do not claim that the objections are decisive or the alternatives viable. Nonetheless, I wish to end by commending a point of Reidian methodology: if a seemingly undeniable phenomenon, such as the reference of thoughts to things, resists analysis in terms of anything natural, accept it as primitive—or even magical—rather than repudiating it as unreal.[35]

Notes

1. I refer thus to Reid's *Essays on the Intellectual Powers of Man*, Essay 2, Chapter 14.
2. See Van Cleve, PFR, 61–64, for further discussion.
3. See PFR, 286–87.
4. Perception may be an exception to the rule that every state with an object has that object because the conception component within the state has that object. I say this because there are places in which Reid says we cannot conceive of any simple attribute that we have not previously perceived (EIP 4.3, 327 and 6.1, 416).
5. See PFR, 15–18.
6. An intentional state is presumably to be defined as a state S such that ∃O(S is of O). (Singular and general reference each raise their own problems, but for my purposes in this chapter I lump them together.) Under that definition, the

causalist's task is to fill the blank in the following conditional definition scheme: if S is of something, then S is of O iff ____. The notion of ofness is already presupposed in delimiting the domain of one's theory of it. Is there any objectionable circularity here? I suspect so, but I'm not entirely sure. Perhaps the project is analogous to presupposing an answer to what Peter van Inwagen calls the Special Composition Question—when is it the case that the Xs compose something?—and going on to answer the more difficult General Composition Question—when do the Xs compose Z, for arbitrary Z? (Van Inwagen 1987).

7. For objections along these lines, see Kim 1977; Adams and Aizawa 2017.
8. A related problem is that causal theories threaten to make all perceptions veridical. Perceptions of men are normally caused by men, but occasionally by trees, as in cases of misperception of trees as men in dim light. In other words, the property whose instantiations cause man-perceptions is the property of being a-man-or-a-tree. On the theory that a type of intentional state is of or about the property K if instantiations of K cause tokens of that type, the misperceptions would be perceptions of the property of being a-man-or-a-tree and thus not really mistaken after all. This objection is developed and a solution essayed in Fodor 1987, chapter 4.
9. See Buras 2005.
10. For this argument, see Buras 2009.
11. See PFR, 25–33.
12. Hume draws a distinction very like this one at T 1.3.1.1, dividing relations into "such as depend entirely on the ideas, which we compare together, and such as may be chang'd without any change in the ideas." He puts resemblance in the former class, contiguity and distance in the latter class. He also puts causation in the latter class.
13. BonJour 1991, 332–33.
14. See Nichols 2007, chapter 2.
15. In several places Reid endorses Cartesian principles about our infallibility with regard to the existence of our own states of mind. For example, he says Descartes was right in affirming that "those doubts, and thoughts, and reasonings, of which he was conscious, did certainly exist, and that his consciousness put their existence beyond all doubt" (EIP 6.7, 515). Certainty about the existence of those thoughts would hardly be worth affirming if it did not likewise include certainty about their content.
16. Among Reid's predecessors, the most robust proponent of the view that causes must know their effects is Malebranche, for whom it is one of the arguments for occasionalism. (For good presentations of this side of Malebranche's views, see Ott 2013 and the chapter by Stephan Schmid in this volume.) Is Reid an occasionalist? He comes close: causation in nature is only regularity of succession, the true cause of any event in external nature being God or some subordinate agent. But his occasionalism is not as extreme as that of Malebranche. Unlike Malebranche, Reid holds that finite agents can be causes at least of events within themselves, such as bodily movements and mental acts. For further discussion, see PFR, 380–86, and Van Cleve 2018, 563–68). Wild though the view that true causes must know their effects may seem, one finds echoes of it in sober sources. Descartes tells us that he was once puzzled by how gravity could carry objects toward the center of the earth unless it had knowledge of this center (CSM 2, 298). Expositors of the Einstein-Podolsky-Rosen paradox sometimes ask how one particle in a spin-conserved pair can "know" that it should be measured as up if the other has been measured as down—a case, perhaps, of the effect needing to know its cause.
17. Karen Bennett is one of many contemporary metaphysicians who accept this requirement (Bennett 2011). Reid's adherence to it comes out in what he says about the chicken and the egg at EIP 6.1, 415–16.

18. See Russell 1911, 1913 (especially chapter 3), or 1914 (especially 169–74).
19. See Moore 1903 or 1910, explained further in Van Cleve 2015.
20. See Harman 1990.
21. See PFR, chapter 10, for more on the Reid–Meinong connection.
22. "There is no state wholly internal to the mind that can be circled and identified as your thought of the hardness of a table. That thought is really a relation between you and the hardness of the table" (Powell 2017).
23. I learn from Spade and Panaccio 2016 that Ockham may in fact have held a causal account of intentionality, but I nonetheless use him as a foil to causal theories here.
24. See Putnam 1981, chapter 1.
25. Ibid., 5, 18, 21.
26. Ibid., 3, 15, 17, 21.
27. On the other hand, if the relata of the relation are property instances or tropes—the redness of this apple and the redness of that one—the resemblance relation arguably does hold necessarily or at least essentially between them.
28. Ott attributes to Malebranche the view that causal relations hold necessarily and *therefore* internally (Ott 2013). He goes on to suggest that only between willing and the willed is there the requisite internality. If the examples I have just given are apt, Ott's 'therefore' is premature. Moreover, internality alone would be no guarantee of necessity. Interestingly, John Searle has claimed that the relation between a volition and its intended effect (a species of intentional causation, in which the cause is an intentional state) is an internal relation (Searle 1983, chapter 4). However, what he means by this is that the intentional state has the other term of the relation as part or all of its satisfaction conditions—for instance, willing that one's arm should rise has as part of its satisfaction condition the rising of one's arm. As Searle makes clear, this is not to say that volitions necessitate their intended effects. No support here for Malebranche's theory of causation!
29. For Addis, natural signs are properties (34–36), and properties arguably have their intrinsic properties essentially.
30. I refer thus to Reid's *Inquiry into the Human Mind*, Chapter 5, Section 3.
31. "Another requisite to our knowing things by signs is, that the appearance of the sign to the mind, be followed by the conception and belief of the thing signified. Without this the sign is not understood and interpreted" (IHM 6.21, 177).
32. See Ayer 1968, 119–23.
33. He actually adds a qualification: "strictly, the relation holds only when the [second] object exists." This may keep him from being a proponent of the full superinternality I am about to discuss.
34. I made a similar claim myself in Van Cleve 1994, but with deflationary nominalist intent. If *a* exemplifies Redness, I said, that is in virtue of the monadic fact that *a* is red. If you have that fact and it grounds the exemplification fact rather than conversely, you do not really need the exemplification fact.
35. Contrast Reid's attitude with Fodor's: "If aboutness is real, it must be really something else" (i.e., identical with or supervenient on something nonintentional) (97).

Literature

Adams, Fred, and Ken Aizawa. "Causal Theories of Mental Content." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, 2017, Summer ed. https://plato.stanford.edu/archives/sum2017/entries/content-causal/.

Addis, Laird. *Natural Signs: A Theory of Intentionality*. Philadelphia: Temple University Press, 1989.

Ayer, A. J. *The Origins of Pragmatism*. San Francisco: Freeman, Cooper, 1968.
Bennett, Karen. "By Our Bootstraps." *Philosophical Perspectives* 25 (2011): 27–41.
BonJour, Laurence. "Is Thought a Symbolic Process?" *Synthese* 89 (1991): 331–52.
Buras, Todd. "The Nature of Sensations in Reid." *History of Philosophy Quarterly* 22 (2005): 221–38.
———. "An Argument Against Causal Theories of Mental Content." *American Philosophical Quarterly* 46 (2009): 117–29.
Cameron, Ross P. "Parts Generate the Whole, But They Are Not Identical to It." In *Composition as Identity*, edited by A. J. Cotnoir and D. L. M. Baxter, 90–107. Oxford: Oxford University Press, 2014.
Descartes, René. *The Philosophical Writings of Descartes*. Translated by John Cottingham, Robert Stoothoff, and Dugald Murdoch, vol. II. Cambridge: Cambridge University Press, 1984.
Fodor, Jerry A. *Psychosemantics*. Cambridge, MA: MIT Press, 1987.
Harman, Gilbert. "The Intrinsic Quality of Experience." In *Philosophical Perspectives*, edited by James Tomberlin, vol. 4, 52–79. Atascadero, CA: Ridgeview, 1990.
Hume, David. *A Treatise of Human Nature*. Edited by David Fate Norton and Mary J. Norton. Oxford: Oxford University Press, 2000.
Kim, Jaegwon. "Perception and Reference Without Causality." *The Journal of Philosophy* 74 (1977): 606–20.
Moore, G. E. "The Refutation of Idealism." *Mind* 12 (1903): 433–53.
———. "The Subject Matter of Psychology." *Proceedings of the Aristotelian Society* 10 (1910): 36–62.
Nichols, Ryan. *Thomas Reid's Theory of Perception*. Oxford: Clarendon Press, 2007.
Ott, Walter. "Causation, Intentionality, and the Case for Occasionalism." In *Debates in Modern Philosophy*, edited by Stewart Duncan and Antonia Lolordo, 95–105. New York: Routledge, 2013. Longer version originally published in *Archiv für Geschichte der Philosophie* 90 (2008): 165–87.
Powell, Lewis. "Thomas Reid on Signs and Language." *Philosophy Compass* 12 (2017): e12409.
Putnam, Hilary. *Reason, Truth, and History*. Cambridge: Cambridge University Press, 1981.
Reid, Thomas. *An Inquiry into the Human Mind on the Principles of Common Sense*. Edited by Derek R. Brookes. Edinburgh: Edinburgh University Press, 1997. First published in 1764. [IHM]
———. *Essays on the Intellectual Powers of Man*. Edited by Derek R. Brookes. University Park: Pennsylvania State University Press, 2002. First published in 1785. [EIP]
———. *The Philosophical Orations of Thomas Reid*. Edited by D. D. Todd. Carbondale: Southern Illinois University Press, 1989.
Russell, Bertrand. "Knowledge by Acquaintance and Knowledge by Description." *Proceedings of the Aristotelian Society* 11 (1911): 108–28.
———. "On the Nature of Acquaintance." In *Logic and Knowledge*, edited by Robert C. Marsh, 125–74. London: George Allen & Unwin. First published as three papers in *The Monist* in 1914.
———. *Theory of Knowledge: The 1913 Manuscript*. Edited by Elizabeth Eames. London: Routledge, 1992.

Searle, John R. *Intentionality*. Cambridge: Cambridge University Press, 1983.

Snowdon, Paul. "Perception, Vision, and Causation." In *Perceptual Knowledge*, edited by J. Dancy, 192–208. Oxford: Oxford University Press, 1988. Originally published in *Proceedings of the Aristotelian Society* 81 (1980–81).

Spade, Paul Vincent, and Claude Panaccio. "William of Ockham." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta, 2016, Winter ed. https://plato.stanford.edu/archives/win2016/entries/ockham/.

Van Cleve, James. "Predication Without Universals? A Fling with Ostrich Nominalism." *Philosophy and Phenomenological Research* 54 (1994): 577–90.

———. *Problems from Reid*. Oxford: Oxford University Press, 2015. [PFR]

———. "Troubles for Radical Transparency." In *Qualia and Mental Causation in a Physical World: Themes from the Philosophy of Jaegwon Kim*, edited by Terence Horgan, Marcelo Sabatés, and David Sosa, 209–30. Cambridge: Cambridge University Press, 2015.

———. "Reid on Perception, Knowledge, and Will: Replies to Hill, Rysiew, and Yaffe." *Analytic Philosophy* 59 (2018): 551–71.

Van Inwagen, Peter. "When Are Objects Parts?" *Philosophical Perspectives* 1 (1987): 21–47.

Contributors

Han Thomas Adriaenssen is Assistant Professor of Philosophy at the University of Groningen. His research focuses on medieval and early modern philosophy of mind and metaphysics. His first book, *Representation and Scepticism from Aquinas to Descartes* (Cambridge UP), appeared in 2017.

Sebastian Bender is Lecturer in Philosophy at Humboldt-Universität, Berlin. His research focuses primarily on early modern philosophy, in particular on the metaphysics and philosophy of mind of this era. In 2016, he published his first book, *Leibniz' Metaphysik der Modalität* (De Gruyter).

Julia Borcherding is currently a University Lecturer in the Faculty of Philosophy at Cambridge University. She specializes in early modern philosophy, with a focus on epistemological, moral, and metaphysical issues and the intriguing points at which they intersect.

David Cunning is Professor of Philosophy and Collegiate Scholar at the University of Iowa, where he is also Chair of the Philosophy Department. He works primarily on issues in early modern philosophy, focusing on the history of conceptions of mind and body, free will, agency and authority, causation, rhetoric, reception, and gender. He is the author of *Argument and Persuasion in Descartes' Meditations* (Oxford UP, 2010), *The Cambridge Companion to Descartes' Meditations* (ed., Cambridge UP, 2014), *Everyday Examples* (Bloomsbury 2015), *Cavendish* (Routledge, in the series The Arguments of the Philosophers, 2016), and *Cavendish: Essential Writings* (ed., Oxford UP, 2019).

Daniel Garber is the A. Watson Armour III University Professor of Philosophy at Princeton University. He is especially interested in philosophy and science in the seventeenth century, particularly as it relates to larger questions of society, politics, and religion. He is the co-editor of the *Cambridge History of Seventeenth-Century Philosophy* (Cambridge UP, 1998), and the author of *Descartes' Metaphysical Physics*

(Chicago UP, 1992), *Descartes Embodied* (Cambridge UP, 2001), and *Leibniz: Body, Substance, Monad* (Oxford UP, 2009).

Sarah Hutton is Honorary Visiting Professor at the University of York. Her research focuses primarily on early modern philosophy, with special interests in the Cambridge Platonists and women philosophers. Her publications include *British Philosophy in the Seventeenth-Century* (Oxford UP, 2015) and *Anne Conway, a Woman Philosopher* (Cambridge UP, 2004).

Julia Jorati is Associate Professor of Philosophy at the University of Massachusetts at Amherst. Her research focuses on early modern philosophy, particularly Gottfried Wilhelm Leibniz. She is the author of *Leibniz on Causation and Agency* (Cambridge UP, 2017) and of numerous articles on early modern metaphysics, philosophy of action, and philosophy of mind.

P. J. E. Kail is Associate Professor in the History of Modern Philosophy at the University of Oxford and Official Fellow and Tutor in Philosophy at St. Peter's College. He has written extensively on Hume, Nietzsche, Berkeley and other figures. His books include *Projection and Realism in Hume's Philosophy* (Clarendon Press, 2007) and *Berkeley's* A Treatise on the Principles of Human Knowledge (Cambridge UP, 2014). He was co-editor of *Hume Studies* and a founding member of the *International Nietzsche Society*.

Martin Lin is Associate Professor of Philosophy at Rutgers University, New Brunswick. His research focuses on metaphysics and philosophy of mind in the seventeenth century and he is the author of *Being and Reason: An Essay on Spinoza's Metaphysics* (Oxford UP, 2019).

Jennifer Marušić is Associate Professor in the philosophy department at Brandeis University. She has published papers on Locke, Hume, Berkeley, Arnauld, and Dugald Stewart. She is currently working on a monograph on Locke's epistemology.

Martine Pécharman is a CNRS Research Director (CRAL, EHESS, Paris). She is the author of numerous studies on early modern logic, philosophy of mind, and metaphysics. Recently, she has been co-editor with Philippe de Rouilhan of *Le Philosophe et le langage* (Vrin, 2017), with Philippe Hamou of *Locke and Cartesian Philosophy* (OUP, 2018), and editor of a special issue of *Les Etudes philosophiques* on "Condillac après l'*Essai sur l'origine des connaissances humaines*" (PUF, 2019). She is currently editing with Laurent Jaffro *Animating the Mechanical World: New Perspectives on More and Cudworth* (Olms).

Dominik Perler is Professor of Philosophy at Humboldt-Universität, Berlin, and Member of the Berlin-Brandenburg Academy of Arts and Science. His research focuses on medieval and early modern philosophy,

mostly in the areas of metaphysics, epistemology, and philosophy of mind. His books include *Partitioning the Soul: Debates from Plato Leibniz* (ed., De Gruyter, 2014), *The Faculties: A History* (ed., Oxford UP, 2015), *Feelings Transformed: Philosophical Theories of the Emotions, 1270–1670* (Oxford UP, 2018).

Tad M. Schmaltz is Professor of Philosophy at the University of Michigan, Ann Arbor. His research focuses on early modern philosophy, and in particular on Descartes and the development of Cartesianism. His books include *Malebranche's Theory of the Soul: A Cartesian Interpretation* (Oxford UP, 1996), *Radical Cartesianism: The French Reception of Descartes* (Cambridge UP, 2002), *Descartes on Causation* (Oxford UP, 2008), and *Early Modern Cartesianisms: Dutch and French Constructions* (Oxford UP, 2017). His recently completed book, *The Metaphysics of the Material World: Suárez, Descartes, Spinoza*, is forthcoming from Oxford UP.

Stephan Schmid is Professor for the History of Philosophy at the Universität Hamburg and Co-Director of the Maimonides Centre for Advanced Studies: Jewish Scepticism. He mainly works on metaphysics, epistemology, and philosophy of mind in the early modern and late scholastic period. His books include *Finalursachen in der frühen Neuzeit* (De Gruyter, 2010) and *Philosophy of Mind in the Late Middle Ages and the Renaissance* (ed., Routledge, 2018).

Alison Simmons is the Samuel H. Wolcott Professor of Philosophy at Harvard University. Her research focuses primarily on early modern theories of mind, the relation between mind and world, and the relation between mind and body. She is author of numerous articles on Descartes, Malebranche, and Leibniz.

James Van Cleve is Professor of Philosophy at the University of Southern California. He works both on early modern philosophy and on current problems in epistemology and metaphysics. His books include *Problems from Kant* (Oxford UP, 1999) and *Problems from Reid* (Oxford UP, 2015).

Name Index

Ablondi, F. 79
Adams, F. 344
Adams, M. McCord 78
Adams, R. M. 101–2
Addis, L. 399
Adriaenssen, H. T. 14–15, 34, 274, 292–3, 348
Aho, T. 35
Airaksinen, T. 313
Aizawa, K. 344
al-Ghazali, A. M. 25
Alhazen 44
Allen, K. 120–1, 249–50
Alvarez, B. 34
Anjum, R. L. 101
Antognazza, M. R. 142
Apolloni, T. 138
Aquinas, T. 18, 26, 28–9, 35–7, 62–3, 78, 101, 123, 252, 269
Ariew, R. 14, 267, 291
Aristotle 14, 56, 62, 67, 78–80, 106, 110–11, 120–1, 133, 183–4, 318
Armstrong, D. 88–9, 100–1
Arnauld, A. 55, 67, 91
Augustine 64, 67–70, 78
Ayer, A. J. 345
Ayers, M. 250

Bacon, F. 202, 209
Baillet, A. 286
Bakker, P. J. J. M 14
Battail, J.-F. 79
Becco, A. 140
Bender, S. 15, 37, 102, 142, 210, 329, 348
Bennett, J. 131, 227–8, 230, 313, 329
Bennett, K. 342, 344
Berkeley, G. 10, 12, 15–16, 54, 295–315, 349
Bettcher, T. M. 312–15
Bitbol-Hespériès, A. 54
Black, A. 101
Bolton, M. B. 238, 250, 308
BonJour, L. 335, 344, 346
Borcherding, J. 15, 138, 348
Boylan, M. 141
Boyle, D. 141, 166–7
Bramhall, J. 191
Brentano, F. 88
Broughton, J. 56–7
Brown, D. 55
Bryson, J. 142
Buras, T. 334, 344
Burnyeat, M. F. 14

Cajetan, T. 21, 28
Callanan, J. 142
Cameron, R. P. 342
Campanella, T. 100
Carlisle, C. 142
Carraud, V. 230, 286
Carriero, J. 141
Carruthers, P. 36
Casaubon, M. 286
Cavendish, M. 10, 13, 16, 54, 145–68
Chanet, P. 101
Clair, P. 79
Clarke, J. 139
Clatterbaugh, K. 292
Clerselier, C. 66–8, 72
Colvius, A. 67
Conway, A. 10, 13, 15, 123–42, 165
Cordemoy, G. de 15, 54, 61–2, 71–7, 79–80
Corse, T. 139
Cory Scarpelli, T. 35
Coté, A. 35
Coudert, A. 139

Cranefield, P. 78
Cross, R. 78
Cudworth, R. 105–21, 166
Cummins, P. D. 315
Cunning, D. 14–15, 100, 166–8, 348
Curley, E. 56, 208–11, 229–30, 268

Daniel, G. 68–9, 73, 235
Davidson, D. 230
Della Rocca, M. 57, 209, 230
Democritus 78
De Risi, V. 271
De Rosa, R. 56–7
Descartes, R. 3, 5, 7–8, 15, 33, 37, 39–58, 61–2, 64–72, 75–80, 87–9, 100–1, 105–10, 113, 119–21, 123–5, 138, 155, 165–7, 171–81, 183–5, 190–2, 194–5, 203, 205, 208, 252, 269–70, 344
Des Chene, D. 14, 56–7
Desgabets, R. 72, 79
Detlefsen, K. 167
Digby, K. 171, 288–91, 293
Downing, L. 312, 314
Drummond, I. C. 14, 37
Duarte, S. 140
Du Vaucel, L. 68

Easton, P. 291
Elisabeth, Princess of Bohemia 40–2, 55, 66, 71
Esfeld, M. 136, 141
Eustachius a Sancto Paulo 18, 34

Fisher, A. 100
Foucher, S. 76
Frankel, L. 141

Gabbey, A. 208, 230
Galen 86–7, 100, 133
Galilei, G. 106
Garber, D. 15, 56–7, 102, 209, 235, 270, 348
Garrett, D. 208–9, 214, 230–1, 313, 329
Gassendi, P. 124, 171
Geulincx, A. 9–12, 15, 100
Ghent, Henry of 35
Giglioni, G. 209
Glennan, S. 14
Gordon-Roth, J. 139
Greenberg, S. 55
Grey, J. R. T. 139, 141–2
Gueroult, M. 57, 209, 211, 226, 231

Hamou, P. 14, 16
Handel, K. 102
Harvey, W. 106, 113
Hatfield, G. 47, 54–8, 166, 307, 314–15
Hattab, H. 14, 16, 56
Heider, D. 36
Helmont, F. M. van 126, 134, 139, 141
Helmont, J. B. van 134, 141
Henry, J. 138
Hobbes, T. 5, 124, 159, 167, 171–92, 194, 199–200, 202–5, 209
Hoffman, P. 55
Hume, D. 4–5, 13, 54, 159, 164, 167, 247, 249–50, 302, 304, 311–14, 317–19, 321–9, 342, 344
Hunter, W. B. 139
Hutton, S. 134, 138–42, 349

Illari, P. 14
Inwagen, P. van 167, 344

Jauernig, A. 262
Jesseph, D. 192
Johnson, S. 297–300
Jolley, N. 101, 270, 296, 300–6, 309, 311–13
Jorati, J. 15–16, 140, 269–70, 349

Kail, P. J. E. 15, 329, 332, 349
Kant, I. 138
Keith, G. 139
Kendrick, N. 304, 312–14
Kim, J. 344
King, P. 23, 31, 35, 56
Knorr van Rosenroth, C. 139
Koivuniemi, M. 56
Kringler, I. 139
Krook, D. 292, 344
Kuhn, T. 14

La Forge, L. de 15, 54, 61–2, 66–75, 77–80
Lähteenmäki, V. 55, 109, 120–1
Lascano, M. P. 133, 135, 139, 141
Lee, S. 15–16, 100, 301, 312–13
Leech, D. 138
Le Grand, A. 15, 274–87, 291–3
Leibniz, G. W. 3, 7, 10, 12–13, 15–16, 54, 91, 123–4, 126–31, 136–7, 140, 165, 202, 209, 252–72, 318–22, 324–9

Leijenhorst, C. 14, 191
Leisinger, M. 141
Lelevel, Henri de 77
Levey, S. 140
Levitin, D. 285, 292
Lin, M. 15, 230, 314, 349
Lindberg, D. 56
Locke, J. 4, 106, 120, 233–50, 258, 272, 285, 290–1, 293, 306, 313, 349
Loeb, L. 56–7, 226, 231, 329
Look, B. 140
Loptson, P. 139
Ludwig, J. 35–6

Magee, J. M. 78
Malcolm, N. 192
Malebranche, N. 7–12, 15–16, 25, 54, 76–7, 80, 83–102, 146, 166, 270, 295–7, 299–301, 303, 306, 311–14, 321, 344–5
Malpighi, M. 275–6
Manning, G. 14, 78
Marquess of Newcastle 55
Marshall, C. R. 208, 230
Marshall, E. 209
Marušić, J. 14, 250, 349
Mattern, R. 56–7
McCracken, C. 80
McDonough, J. K. 16, 312–13
McRae, R. 270
Melamed, Y. 230–1
Mercer, C. 139, 141
Merchant, C. 126, 139–40
Mersenne, M. 190
Miller, J. 209
Mintz, S. 122
Molina, L. de 97
More, H. 124–5, 128, 138–42, 146, 166
Morrison, J. 208, 227–8, 230–1
Mumford, S. 101

Nadler, S. 10–12, 15–16, 35, 37, 79–80, 100–1, 121, 209
Nagel, J. 250
Newman, L. 250
Nichols, R. 335, 340
Nolan, L. 14, 120
Nols, C. 314

Ockham, W. 34, 36, 63, 78, 331, 339–42, 345
Olivi, J. P. 34
O'Neill, E. 56–7, 139, 166
Ortin Nadal, A. 57
Ott, W. 15–16, 55, 57, 100–1, 250, 344–5
Owen, D. 329

Paganini, G. 191
Pagel, W. 141
Parkin, J. 120
Pasnau, R. 14, 34–6, 56, 78, 138
Passmore, J. 109, 120
Payne, R. 191
Pécharman, M. 15, 121, 191, 349
Perler, D. 14, 34–6, 56, 101–2, 141–2, 210, 329, 349
Perszyk, K. 102
Pitcher, G. 312
Place, U. T. 101
Plato 34, 121, 123, 138
Plotinus 121
Pope Clement VIII 97
Powell, L. 339, 345
Priselac, M. 250
Prost, J. 79
Puryear, S. 269–70
Putnam, H. 333, 339, 342, 345

Radner, D. 56
Regis, P.-S. 77, 80
Reid, J. 138–9, 141–2
Reid, T. 101, 331–45
Richards, C. M. 120–1
Richardson, K. 37
Rickless, S. 250
Roux, S. 79
Rozemond, M. 35, 46, 54, 56–7
Rudolph, U. 35
Russell, B. 333, 337–8, 345
Ryle, G. 88

Sailor, D. B. 120
Sánchez, J. M. de León Serrano 102
Sangiacomo, A. 100
Saporiti, K. 312
Sarasohn, L. 167
Schliesser, E. 139
Schmaltz, T. M. 14–15, 37, 56–7, 78–80, 101–2, 250, 350
Schmid, S. 11–12, 14–15, 35, 101, 166, 312–13, 344, 350
Schmitt, F. 329
Schoock, M. 285–6, 293
Schuller, G. H. 208
Schumacher, L. 35

Schuyl, F. 67–8, 78
Scott, D. 78
Scribano, E. 86–7, 100
Searle, J. R. 345
Sepper, D. L. 270–1
Sergeant, J. 3, 274–5, 277–93
Shapin, S. 14
Shields, C. 35
Silva, J. F. 78
Simmons, A. 14–15, 56–8, 350
Socrates 117, 340
South, J. 26–7, 36
Southgate, B. 292
Spade, P. V. 345
Spinoza, B. de 15, 54, 141, 165–6, 168, 194–210, 212–31, 270, 321
Spruit, L. 34, 36
Stoneham, T. 307, 313–14
Suárez, F. 18–37, 97

Telesio, B. 202, 209
Thiel, U. 121
Thijssen, J. M. M. H. 14
Tönnies, F. 190
Tropia, A. 37

Van Cleve, J. 15, 343–5, 350
Viterbo, J. of 35
Voltaire 7, 15

Waldow, A. 102
Wallis, J. 171–2
Walters, L. 167
Ward, S. 171–2
Weichert, U. 140
Weigel, V. 270
White, C. W. 139
Wilson, C. 140
Wilson, M. 55, 102, 227–8, 230–1, 250, 293
Winkler, K. 299, 304, 312–15
Wood, A. A. 274
Wurst, M. 102

Yaffe, G. 101
Yolton, J. 249, 293

Subject Index

abstract 19, 63, 107, 133, 228, 278, 252, 254, 257–8, 260, 262–7, 272, 279, 334
abstraction 19, 20, 29, 117
accident 18–19, 70, 79–80, 174–6, 181, 183, 185, 187, 237
action 9–10, 40–3, 46–8, 52, 55, 58, 64, 68, 70–4, 91–3, 95–8, 102, 109–10, 113–14, 120, 124, 127, 129, 130–1, 136, 138, 146–7, 149, 155–7, 159, 162, 174, 180, 192, 209, 246, 248–9, 255, 258–9, 261, 282, 284, 292, 299–300, 314, 328, 331; action at a distance 63, 160–2, 332–3; vital action 124, 127, 129–32, 138; voluntary action 39–42, 249
activity 8, 10–11, 13, 16, 22, 26, 32, 64, 66, 70, 109–10, 114, 125, 127–31, 134–6, 147, 155, 158, 162, 167, 248–9, 295, 297–9, 306, 309–10, 320, 322, 324; mental activity 61, 62, 66, 70–1, 107, 116, 119, 243, 247–8, 282, 289
agent 8–11, 15, 19, 23–4, 28, 35, 64, 75, 95, 109, 119, 131, 152, 159, 167, 171, 175–6, 180, 186, 188, 190–1, 246, 280, 283, 292, 299–301, 315, 319, 335–7, 344
anamnesis 121
apparition 159, 174, 175, 186–7, 189–90
archetype 111, 113, 115
Aristotelian/Aristotelianism 2–7, 11, 14–15, 18–20, 27, 32–4, 36–7, 44, 61–3, 73, 79, 86–8, 101, 106, 110, 120, 133, 141, 183–4, 193, 252, 267, 271, 275, 290–1, 293, 346–7
arithmetic 261–4, 271
artefact 111, 147, 152, 165
assimilation 2, 6–7, 18–19, 34, 44–5, 48, 53–4, 293
atom 79, 107, 112, 124, 129, 131–2, 135, 136, 138, 140, 288–90
attribute 6, 10, 95, 98, 108, 125, 127, 129, 133, 171, 195–6, 200, 206, 211–15, 218–19, 221, 226, 229, 231, 283, 343; barrier between attributes 214

beast-machine 68–9, 73, 79
beatitude 195, 207
blind thought 264–6, 271–2
body 4–6, 19–22, 33, 43, 48–58, 61–2, 64–80, 87–97, 100, 104, 106–8, 113, 115–16, 120–1, 123–5, 127, 129–31, 133–6, 138, 141, 145–55, 158–63, 165–8, 175–81, 186–7, 189–92, 194–210, 212, 214, 216–17, 220–6, 228–9, 231, 242–5, 247, 253–63, 267, 269–70, 272–81, 283, 288–91, 293, 295–6; external body 43, 134, 159–60, 162, 164, 176, 188, 196–7, 199; human body 40, 66, 94, 147, 192, 196–202, 209–10, 214, 216–18, 220, 223, 225, 290–1
brain 4–5, 33, 41–3, 45, 47–55, 57, 70, 136, 162, 174–8, 186, 192, 202–4, 209, 225, 276–7, 281, 286, 288–91

capacity 2, 5–6, 10, 36, 89, 96, 99, 101, 110, 115, 117, 129, 131, 137, 140, 267, 287, 321, 335
Cartesian/Cartesianism 3, 4, 8, 11, 33, 49, 62, 64–79, 106–9, 112, 120–1, 124–5, 146, 173–9, 182–3, 185–6,

189, 192, 203, 252–3, 274–7, 285–8, 291–3, 295, 344; Cartesian idealism 78
causal 2, 4–13, 19, 25, 32–3, 41–57, 61–3, 65–6, 70–1, 78, 84–90, 99–100, 102, 106–14, 119, 121, 126–8, 141, 145, 160, 164, 171–6, 180, 187–91, 194, 196, 200, 204–8, 212–25, 227–30, 234–7, 239–41, 249, 252–4, 256, 279–80, 283–4, 292, 295–306, 308–9, 312–14, 318–21, 323–7, 331–7, 339, 341, 343–5; causal rationalism 227
causal axiom 212–13, 215–29; dependence version of 226, 228; implication version of 226, 228–9; as logical 218, 225, 227–8; as psychological 4, 228; as restricted 15, 226–7
causation 1, 3, 6, 8–15, 33, 35, 37, 42, 46, 48, 53–4, 57, 61, 63–5, 71, 73, 83–4, 86–7, 90, 98–101, 103, 106, 108–9, 123–4, 126, 129, 136, 146, 150, 153–4, 158, 160, 164–6, 171–3, 179–81, 186, 210, 212–19, 225, 227–9, 233–4, 243, 269, 272, 274–5, 281, 287–91, 295–7, 299–301, 304–6, 309, 311–14, 317–19, 321–5, 327–9, 331–7, 341, 344–5; agent causation 299, 335–6; event causation 11, 335–6; mental causation 106, 110, 112, 118–19; mind-body causation 41, 221
cause 1–4, 8–13, 25–6, 36, 40–1, 46, 48, 53, 56, 65, 69–71, 75, 84–6, 89–90, 98–100, 105, 110, 112, 114, 117–18, 150, 153, 156, 159, 163–5, 173, 176, 179–81, 187–8, 192, 196, 206, 212–13, 215–18, 220–9, 243–50, 258, 267, 269, 277–8, 281, 283, 287, 296–301, 304–6, 310, 312, 314, 317–19, 323–7, 332, 336, 344–5; accidental cause 70; cause of motion 9, 12, 73–4, 85, 153, 166–76, 186, 270; cause of sensation 71, 75–8, 172, 174, 188; cause of voluntary action 40; efficient cause 48, 65, 70; equivocal *vs*. unequivocal cause 71, 74; formal cause 33, 37, 106, 110; occasional cause 6, 8, 25, 48, 69–70, 83, 90, 98, 150–1, 153–5, 164, 274, 300–1
cognition 1–3, 6, 8–14, 18, 20, 23, 28–31, 34–6, 41–5, 49, 53–6, 58, 61–6, 69, 83, 87–90, 98, 100–1, 105, 112–20, 123–4, 126, 128–33, 136, 138, 145, 155, 162–5, 171–4, 178, 180–1, 186–90, 194, 210, 212, 215, 224–7, 229, 235, 247, 249, 252–4, 257–63, 266–7, 269–72, 274–5, 280, 287–8, 291, 293, 317–18, 329, 336–7; animal cognition 61; sensory cognition 1, 43–5, 49, 53–5, 62–6
common sense 62, 177–8, 260, 263, 270, 275, 293, 338
common sensible 40, 44, 49, 53, 55
compatibilism 154, 158, 165
conatus 186–7, 189–90
concept 13, 15, 44, 54, 97, 105, 108, 121, 164, 209, 213, 333
conception 13, 26–7, 32, 45, 62, 66, 79, 87, 93, 102, 106–10, 120–1, 125, 132–3, 136, 141, 173, 174–6, 180–1, 184, 198, 207–8, 228, 234, 236, 270, 312, 317, 321, 329, 331–3, 336, 338–40, 342–3, 345
consciousness 109–10, 120–1, 136, 175, 204, 209, 344
conservation 79, 84, 93
contingent/contingency 96, 262, 303, 311, 314, 309
continuous creation 84, 99, 281–2

de auxiliis debate 97
dependence 74, 77, 224–6, 228–30, 248, 252–3, 255–6, 259–60, 263, 267, 272, 281, 323; ideal dependence 255
discourse 164, 171; mental discourse 171–3, 180, 182, 192
disjunctivism 332
disposition 21, 35, 88, 100–1, 108, 111, 119, 227, 258–9, 279, 317
divine foreknowledge 90, 96–7, 99, 102
doubt 28, 31, 74, 97, 126, 148, 150, 158, 166, 173, 176, 183, 207, 225, 243–5, 271, 297, 317, 344
dream argument 173–6
dualism 11, 33, 43, 54–5, 62, 67, 73, 124, 137–8, 140–1, 179, 192, 290–1, 293, 295

ectype 111, 113, 115, 119
enthusiasm 275, 282, 285–7, 291, 293

essence/essential 21–3, 27, 30, 63, 80, 98, 107–9, 111–12, 115–17, 119, 126, 182–3, 195, 200–1, 206–8, 212, 215, 219–20, 223, 225–6, 234–5, 321
eternity 125, 210, 326
explanation 5–6, 11–12, 20, 54, 58, 83, 87, 107, 129, 131, 171–2, 174–5, 178–80, 187, 189–90, 204, 209, 212, 214–16, 218–22, 228–9, 234–5, 237–40, 250, 258, 263, 270, 290, 313; causal explanation 54, 107, 213–16, 218–19, 221–2, 228–9, 239–40; physiological explanation 234–5, 238–9
explicare 200, 209

faculty 2, 4–5, 22–9, 31–3, 35–6, 40, 65, 70, 134, 155, 164, 172–3, 183, 247, 253, 260–1, 278, 318–20, 322–7, 338
form 8, 11–12, 18–19, 26–7, 34, 40, 45, 53–6, 62–3, 72, 91, 110–13, 119, 131–2, 136, 159, 174–5, 179, 182, 249, 253, 269, 288–91, 293, 299, 318, 321
freedom 89, 95–7, 102, 154, 156–8, 165, 167, 248–9, 256

geometry 50, 125, 206, 261–3, 265–6, 271
God 1, 6–8, 11–12, 25, 27, 33, 41–3, 46–8, 50, 56, 65, 68, 70–8, 83–6, 90–9, 101–2, 105, 110, 114–16, 119–20, 125, 128, 130–1, 133, 137, 139–40, 146, 154, 162, 166, 177–9, 186, 195–6, 201, 206–10, 213–16, 219–20, 222–3, 225–7, 229–30, 240, 242, 249, 254–7, 262–5, 269, 271, 279–81, 283–5, 287, 289–91, 293, 295–6, 298, 300–2, 306, 308, 310, 312–15, 321, 329, 336, 344
grounding 92, 123, 126–7, 131, 133, 173, 183, 190, 241, 253, 297, 303, 311, 334, 337, 342

harmony 25–6, 54, 108, 112, 120–1, 156, 253–5, 257, 262, 269–70
Humean/Humeanism 11, 304, 311–13

idea 6–8, 11, 18–20, 24–5, 28, 33, 40–3, 45, 47, 55–7, 66, 70, 76–7, 80, 87, 89, 98, 102, 112–13, 115, 117–19, 133, 159, 177–9, 186, 192, 194–206, 208–10, 214, 216–27, 229, 233, 236–7, 240, 243, 245–9, 258, 277–80, 285–7, 292, 295–8, 300–3, 305, 307–12, 315, 322–4, 331–3, 335, 342; adequate idea 206, 219, 223, 225, 240; inadequate idea 206, 223, 225; innate idea 69, 252, 257, 259–61, 267, 270, 278–9
identity 124, 174, 180, 182–4, 199, 209, 212, 214, 222, 227–8, 290, 292, 313, 323, 343
illumination 21–2, 28, 64; divine illumination 35, 65, 69
illuminationism/illuminationist 21–3, 30
image 1, 4, 21–3, 42, 44, 49, 50, 52–3, 58, 68, 111, 118–19, 131–6, 158–60, 172–7, 180–1, 190, 260–1, 265, 270, 272, 276, 315, 320, 331, 335
imaginary space 177
imagination 4–5, 25, 27, 40, 42, 57, 62, 64, 77–8, 80, 107, 115, 118, 121, 134–5, 171–3, 176–81, 194, 197, 208, 211, 249, 252–3, 259–67, 270–2, 320, 324, 328
individual 97, 112, 115–16, 124, 126–7, 131, 134, 136–40, 146–8, 153–4, 160, 165, 168, 183, 196, 198–9, 201, 206, 266, 321
induction 302–3, 309–10, 317
innatism/innatist 20, 36
intellect/intellectual 6–8, 20–9, 31–3, 34–6, 40, 43, 55–6, 63, 65, 69, 117, 178, 181, 183, 195, 206, 226
intelligibilia 119
intelligibility 105, 108, 119–20, 164, 299, 312–13; intelligibility of causal connections 164, 299, 312
intelligible species 18–21, 26, 28, 31, 63
intentional/intentionality 12, 14–16, 44–5, 56, 64, 88, 89, 100–1, 171, 174–5, 189, 331–4, 337–9, 341, 343–5; intentional species 64, 171, 174–5, 189
interaction 5–6, 31–3, 62, 79–80, 121, 131, 134, 147, 152, 154, 158, 160, 165, 187, 200, 202, 219
interaction of mind and body 20–1, 31, 33, 41, 46, 48, 56, 74, 94, 196, 212–17, 221–2, 225–9, 252, 254; causal interaction 40–1, 160, 200, 229, 253–6, 281, 291

intuition 77, 168, 194, 206, 208, 272, 322, 333
intuitive cognition 266, 271
involvere 196–7, 200, 208, 230

knowledge 9–10, 20, 22, 28, 50, 61, 63–5, 67, 69, 78–9, 85–7, 89–90, 95–7, 99–100, 102, 112–20, 125, 129, 131–3, 153, 155, 162–4, 168, 171, 173–4, 176, 178, 184, 187, 194–5, 197, 199, 201–2, 204–6, 208–9, 220, 223, 234–44, 246–7, 250, 258, 263, 265, 269, 271, 274, 282, 301–3, 309–11, 319–20, 323–5, 329, 333, 344; causal knowledge/knowledge of causes 187, 194, 205–6, 221, 319, 321; knowledge and infallibility 335; knowledge of God 212, 219–20, 222–7, 229, 329; knowledge of the first kind 194–5, 205–6, 208; knowledge of the second kind 206; knowledge of the third kind 194, 206–8; middle knowledge (*scientia media*) 97; seat of knowledge 289–90, 293

language 34, 72, 141, 152, 155, 265, 267, 300, 339, 341–2
law 40, 43, 46, 48, 54, 90, 91–102, 137, 172, 174–6, 180, 186, 302, 305, 321, 336, 341–2
logic 111–12, 119, 236, 244, 262, 322

magic 35, 55, 331, 340, 342; natural magic 340–2
material 1–3, 5–6, 9, 11, 18–25, 28–35, 46, 61–6, 74, 76–8, 90, 106, 108, 112, 115–16, 119, 123, 126, 130, 133, 135–6, 138, 145–6, 159–60, 176–8, 184–6, 189–90, 192, 249–50, 258, 264, 295, 308, 312, 314
materialism/materialist 189, 124, 149
matter 2–3, 11, 14, 44, 52, 56, 62–4, 69, 89–90, 97, 107–13, 120, 125, 130, 134, 136, 138, 140, 145–52, 157–61, 163, 166–7, 184–6, 188, 190, 200–2, 209, 234, 249–50, 254, 263
mechanical 5–6, 54, 106, 108–9, 112, 127, 130, 172, 175, 180–1, 186, 300, 318, 326–7
mechanism/mechanist 4–5, 12–13, 16, 33, 64, 72, 105–6, 109–10, 113, 171–6, 178–80, 186–7, 189–91, 235–8, 327–8
memory 40, 42–3, 69, 118, 123, 135–6, 190, 203, 224, 245–9, 317, 320, 324–5, 327–8
mental 12, 42, 70, 76, 88, 101, 105, 109–10, 113, 116, 119, 133, 135–6, 155, 167, 171–3, 176–7, 179–80, 185, 189, 191, 221, 233–6, 243, 247–8, 253–60, 265, 267, 299, 308, 321, 323–4, 331, 333, 337–40, 344
mind 5, 8, 10–12, 32–3, 39, 40–3, 46–61, 64–71, 73–80, 84, 86–7, 89, 94, 97, 105–21, 123–5, 128, 135–6, 138, 145–6, 149, 155, 157, 162, 168, 172–3, 177–86, 189, 192, 194–202, 204–11, 213–14, 217, 219–25, 228–9, 231, 233–7, 240, 242–4, 246–7, 249–50, 252–65, 267, 271, 295, 297–8, 301, 307–12, 319, 323, 326, 329, 331–4, 339–41, 343–5; physical consideration of the mind 234–6
miracle 91
mode 29, 41, 45, 65, 126, 145, 195–6, 198, 200, 212–16, 224, 226–7, 229, 231, 237, 252, 269; mode identity 212
modular/modularity 32, 36
Molinism 97, 102
monad 12, 16, 126–8, 131, 136–7, 140, 253–4, 256, 263
monism 126, 134, 137, 139, 141, 177, 185
motion 9, 12, 16, 33, 39, 42–58, 62, 64–6, 70–5, 77–9, 84–5, 89–90, 93–5, 97, 107–8, 110, 115, 120, 124–5, 127–32, 138, 145–6, 148–54, 156–64, 166–7, 171–6, 179–81, 185–90, 192, 198–200, 202–4, 209, 234, 246, 248–9, 269, 300, 307, 312
multiplicity 123–4, 129, 131–8

natural 1–2, 7–8, 10–11, 19, 25, 33, 35, 50, 62, 73, 76, 83, 90, 93, 95–101, 105, 108, 111, 115, 119, 125, 127, 130, 138, 141, 146–7, 149–52, 156, 161, 165, 168–70, 185, 187, 190, 193, 213–15, 217–18, 220, 223, 225, 236, 259,

262, 270, 295, 304–5, 313–14, 317, 326, 333
naturalism 318, 327
nature 2, 4–8, 12–13, 16, 27–30, 33, 39–41, 43, 47–52, 57, 63–8, 70–1, 73, 75–7, 83, 87–8, 90–6, 98–102, 105–6, 108–15, 117–21, 123–6, 128–34, 136–41, 145–9, 151–8, 160–5, 174–81, 185, 187–9, 195–207, 212, 214, 216–18, 223, 226–7, 229, 235–6, 239, 249, 253, 258, 262, 272, 298, 300, 302, 305, 309–10, 313–14, 318, 321–6, 331, 335–9, 342, 344
necessary connection 76, 84, 99, 103, 164, 302–4, 309–15, 321, 323, 342
necessity 48, 61, 92, 207, 269–70, 296, 304, 311, 314, 339–40, 345
norm 156
notion 56, 107, 111–12, 115–16, 119, 136, 141, 151, 177, 197, 206, 218, 224, 233, 252, 255, 258–67, 270–2, 308, 310, 312, 315, 340, 343–4; primitive notion 66, 71, 272

occasionalism/occasionalist 8–9, 13, 15, 25, 35, 54, 62, 70–1, 73–5, 78–9, 83–6, 90, 98–9, 105, 151, 153, 274, 295–6, 299–303, 312, 321, 344
order 24–5, 59, 87, 111, 114–15, 119, 125, 135–6, 146, 149, 182, 185, 189, 195, 206, 212, 214, 220–1, 225–6, 270, 310, 329

pancreas problem 202, 204
passion 27, 41–3, 55, 66, 107, 117, 246–8
passive 11, 27, 34, 41, 53, 58, 109, 112, 114–17, 128, 130, 133–4, 147, 149, 171, 216–17, 223, 247–8, 255, 269, 297–8, 300, 308, 312–13
passivity 234, 243, 247–8, 297–8, 312
perception 8, 10, 16, 19, 24, 40–3, 49–53, 55, 58, 64, 107, 113, 115, 117–18, 121, 123, 125, 127–8, 130–3, 135–6, 149, 158–63, 171–5, 180, 197–8, 201–2, 204, 209, 212, 216–19, 222–7, 229, 244, 247, 253, 255–65, 267, 269–70, 318–19, 322–5, 328, 331–2, 334, 343–4; causal theory of perception 234, 332; intellectual perception 40–2, 253
phantasm 18–32, 35–6, 63, 186–90, 203, 209, 252
phenomenon 157, 187, 343
philosophy 68, 72, 78, 100, 105–7, 112, 120–1, 123, 125, 139, 151, 176, 184–5, 191, 210, 217, 228, 272, 300, 317, 319, 323; natural philosophy 59, 108, 110, 187, 235–6
Plastic Nature 105–6, 109, 112–15, 118–22, 125
plenum 145, 160, 168
possibility: metaphysical possibility 256; moral possibility 256; physical possibility 256
power 7, 10–11, 24, 62, 71, 74–5, 79–80, 127, 137, 140, 223, 230, 238, 241, 245, 250, 256, 259, 265–7, 321, 327, 332, 337, 342; causal power 11, 87, 100, 249, 321; mental power 234
pre-established harmony 54, 253–5, 257, 262, 269
Principle of Sufficient Reason 256–7, 270
prolepsis 116
proper sensibles 40, 44–5, 55
property 3–4, 79, 130, 137, 141, 166, 182–3, 339, 342, 344–5; geometric property 3–4; intrinsic property 345; kinetic property 3–4

quality 63, 174–5, 237, 240–1, 243, 322, 338

ratio 111, 199, 206, 209
reason 11, 76, 155, 157, 160, 163–4, 206, 320, 324, 326–8
reference 16, 331, 339–40; magical theory of reference 339
reflection 96, 100, 117, 135–6, 174, 234–5, 243–4, 247, 249, 258–9, 261
regularity 13, 33, 50, 54, 156, 304–5, 311–12, 314, 325–6, 344
relation 1, 3–9, 13, 19, 24–5, 29, 33, 40, 47–9, 54, 56, 61, 70, 77, 83–4, 98–9, 111, 115–17, 119, 131, 171, 183, 185, 194–5, 199–200, 207, 214–18, 220–1, 224, 226–9, 235, 254–6, 270, 296–8, 300–5, 307, 309–14, 317–19, 321–4, 326–8,

331–45; external relation 334; internal relation 334–5, 338–9, 342; irreducible relation 331, 337, 343; superinternal relation 342–3
representation 6–8, 18–19, 21, 28–30, 34, 40, 55, 132–3, 173, 217–18, 220, 242, 253, 260, 265, 328, 341
representational content of ideas 241
resemblance 44–54, 56, 67, 118, 242, 321–2, 324, 334, 339, 345
retinal image 49–51, 53, 58, 334

scholastic/scholasticism 2–3, 7, 14, 18, 20, 23, 35, 61–6, 68–9, 78–9, 102, 106, 171–2, 174, 176, 182, 189–91
sensation 40, 47–8, 52, 54, 57–8, 61–71, 74–8, 107, 115–17, 129, 138, 162, 171–6, 180–1, 186–90, 194, 199–200, 203–5, 207–8, 234–5, 239–50, 257, 260, 262, 297, 307, 319–20, 328, 333–34, 339–43
sense 10, 26–7, 55, 58, 61–71, 73, 76–7, 80, 107–8, 115–21, 124, 131, 135, 146, 159–64, 172–4, 177–8, 180–1, 183, 186–91, 194, 234–40, 242–5, 252, 257–64, 267, 309, 323, 326–7, 338; sense organ 43–4, 35, 55–6, 58, 63, 65, 78, 132–3, 135, 158–60, 162–3, 171, 175, 177, 187, 189–90, 198, 201–2, 235–6, 238, 245, 257; sense perception 40, 58, 107, 117–18, 121, 133, 135, 160, 162, 171–5, 198, 212, 216–19, 223–7, 255, 257–63, 267, 269, 175–6, 202–3, 205–6, 270–1
sensory 1–2, 4, 18–20, 24–9, 31–3, 39–40, 42–3, 45–6, 49, 51, 53–8, 61–6, 70–1, 73–8, 80, 87, 108, 129, 132, 159–60, 175, 187–8, 194–5, 202, 204–6, 252–3
septum lucidum 289, 293
sign 47–8, 57, 235–6, 271, 305, 308, 310, 339–41, 345; natural sign 48, 51–4, 331, 336, 340–3, 345
signification 47, 181, 339, 341
simplicity 32, 93, 123, 128, 138, 140, 222; simplicity thesis 124, 137, 138
skepticism 3–4, 238, 307, 322, 324
soul 4, 24–8, 31–3, 36, 41, 46, 48–55, 57–8, 61–4, 66–8, 70–80, 91, 93–4, 97–8, 102, 106–9, 116–18, 120–1, 123–4, 128, 134–5, 137–9, 146, 178, 192, 254–8, 260–3, 269, 297, 327–9; disembodied soul 269; separated soul 257
space/spatial 40, 44, 49, 50–3, 55, 58, 72, 128, 130, 145, 160, 163, 277, 188–9, 225, 260–4, 271, 313, 334; spatial perception 49, 53, 55
species 18–21, 23–9, 31–2, 34–6, 43–5, 56, 62–4, 116, 127, 137, 171–2, 174–5, 189, 210, 233, 243, 304, 327, 345; species theory 29, 34, 43–5, 56
spirit 9–10, 12, 26, 41–3, 46, 51–4, 84, 89, 124–30, 133–8, 141, 146–7, 174, 176, 178, 234, 254, 263, 295, 296–303, 306–14
spiritual generation 124, 131, 133–6, 138
spiritualism 67–8
spontaneity 253, 255, 269
subject 19, 36, 67, 101, 123, 130–2, 138, 141, 149, 160, 164, 174, 176, 180–9, 192, 215–18, 222, 239, 245–6, 263, 327, 337, 343
substance 3–4, 10–11, 16, 30–1, 33, 36, 39, 55, 64–5, 67, 73, 77, 94, 107–9, 113, 123, 125–7, 129, 131, 134, 138, 145, 150, 152, 158–60, 162, 166, 172, 175, 177, 181, 183–6, 191, 195–6, 208, 212, 226–7, 229, 253–4, 256, 258, 263, 269, 295, 297–9, 312, 321
substantial form 3, 18–19, 36, 44, 62–3, 78, 107
symbol 128, 257, 259–60, 263–7, 271–2, 335, 341

teachings of nature 65–6, 70
theodicy 101, 269
thought 5–7, 13, 35, 39, 47, 54–7, 63–4, 66, 68–71, 73–80, 88, 107, 109, 119–21, 123–4, 128, 134–6, 146, 148–50, 163, 181, 186, 195–7, 200, 202, 221, 226, 228, 233, 237, 239, 241, 244, 246–7, 249–50, 252–4, 257–61, 265, 267, 270–2, 309, 323, 331, 333–6, 342–5; abstract thought 133, 154, 254, 257–8, 260, 262–5, 267; thought experiment 129, 173, 184; vehicle of thought 252, 264
transduction 23, 48, 53–4

transfer of motion 145, 150, 152, 159, 166
transmission 63, 132–43, 200; sensory transmission 40, 45, 49, 51, 53, 56
transparent/transparency 306–11, 314

understanding 40, 45, 65, 72, 77, 79–80, 108, 110–11, 113–15, 119, 208, 213, 215–16, 222, 233–5, 239, 247, 252, 258, 263, 322, 333, 336; causal understanding 70
universal 15, 22, 29–31, 91–3, 99, 107, 116–17, 121, 123, 127, 137–8, 140, 173, 176, 187, 206, 254, 258, 269–70, 272, 325–6, 334, 336, 342

vision 44, 46, 50, 54, 81, 130, 134, 174, 192, 248, 296, 301–6, 308, 311, 313–14, 345
vitalism 127–8, 140
vitality 127, 129–30, 137, 140
volition 8–12, 34, 40–2, 54–5, 84, 91–3, 96, 99, 101; general volition 91–3, 101–2; particular volition 91, 102

will 5, 8, 10, 26, 40, 54–5, 83–5, 91–3, 95–6, 98, 120, 155, 191, 245–50, 299, 304, 313, 321, 336, 341
world 4, 11, 13, 16, 25, 29, 35, 39–40, 49, 54, 61, 65–6, 71–3, 76, 78–9, 83–4, 87, 90–1, 93–6, 98–9, 101–2, 105–6, 108–13, 115–20, 125, 127, 140, 143, 146–7, 149, 151–2, 172, 196, 203–5, 236, 254, 256, 269, 308, 313, 327, 335, 337; external world 56, 76, 106, 115, 117–18, 133, 171, 173, 194, 204, 208, 216–17, 222, 249–50